

# MDX-400/400RDS

## SONY<sup>®</sup> SERVICE MANUAL

*US Model*  
*Canadian Model*  
*E Model*  
*MDX-400*  
*AEP Model*  
*UK Model*  
*MDX-400RDS*

## SUPPLEMENT-1

File this Supplement with the Service Manual.

### Subject :

1. DISASSEMBLY
2. HOW TO BEND IN A ROTARY FLEXIBLE BOARD
3. TEST MODE
4. ELECTRICAL ADJUSTMENTS
5. EXPLANATION OF IC TERMINALS
6. BLOCK DIAGRAMS
7. IC BLOCK DIAGRAMS
- CORRECTION

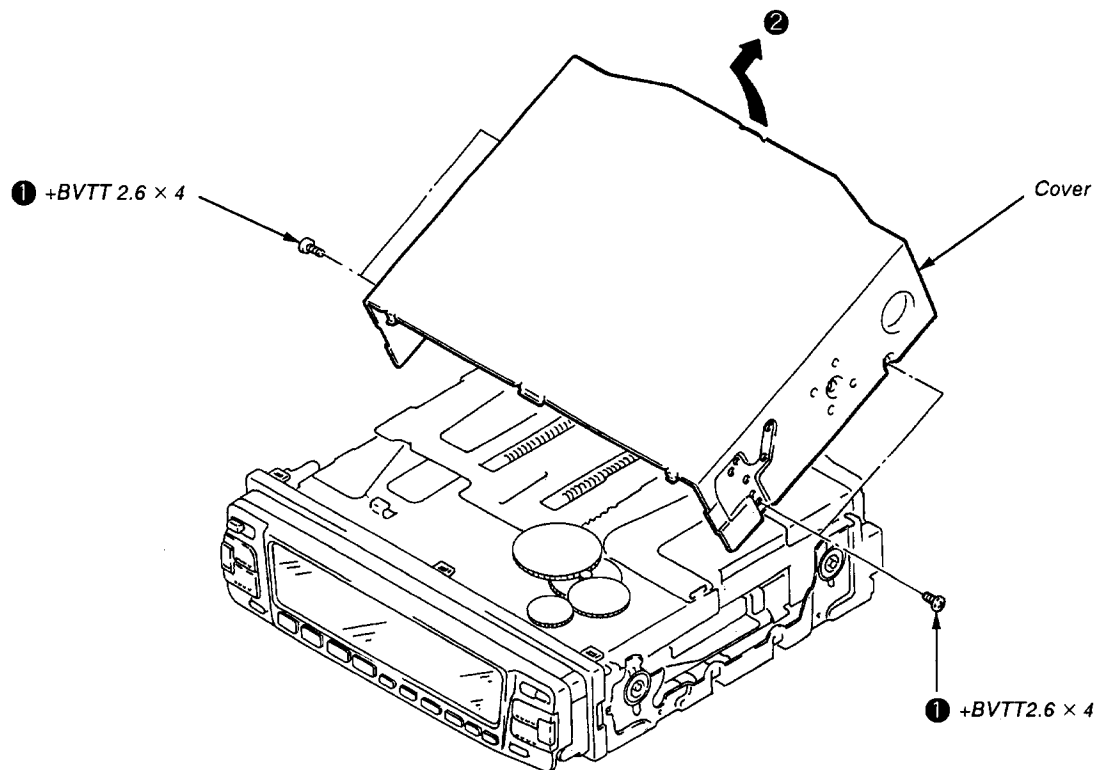
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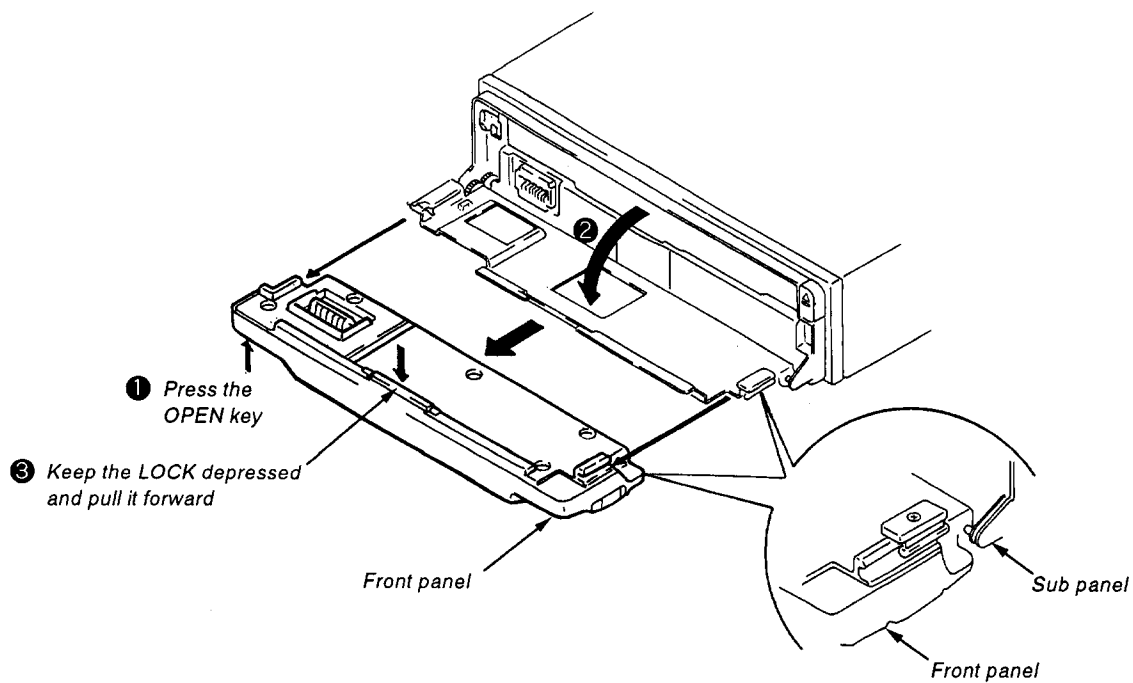
## SECTION 1 DISASSEMBLY

**Note :** Follow the disassembly procedure in the numerical order given.

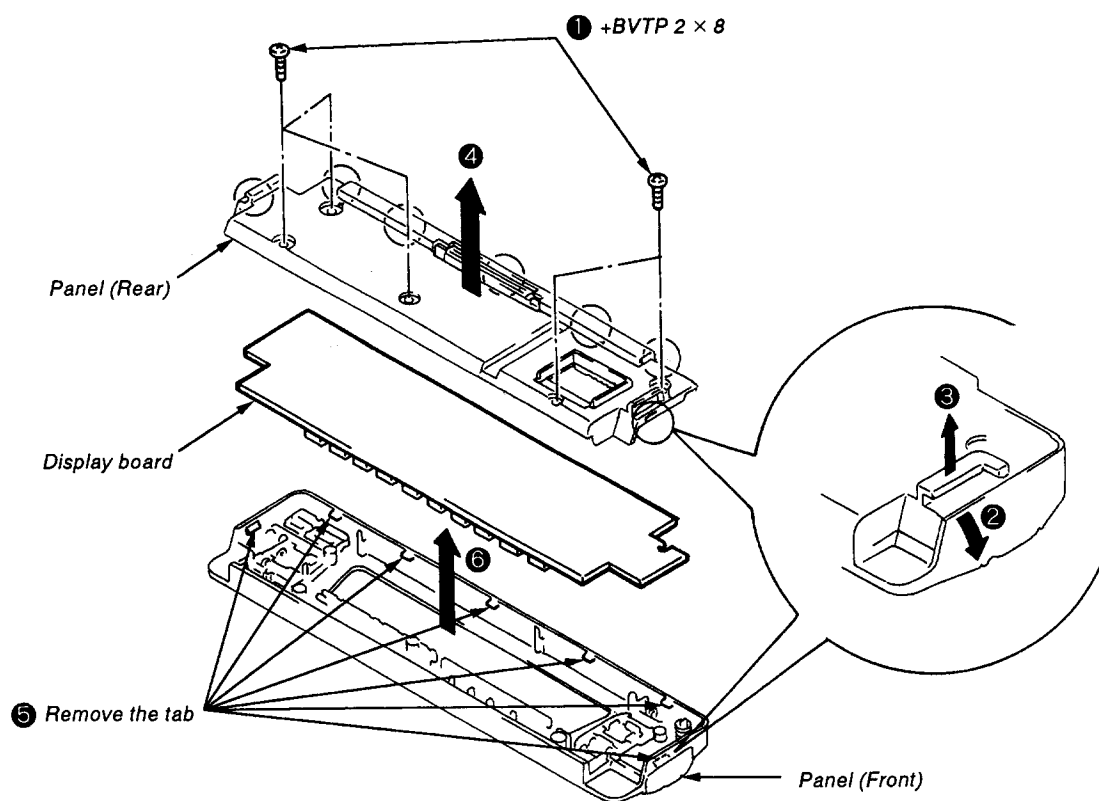
### 1-1. COVER ASSY



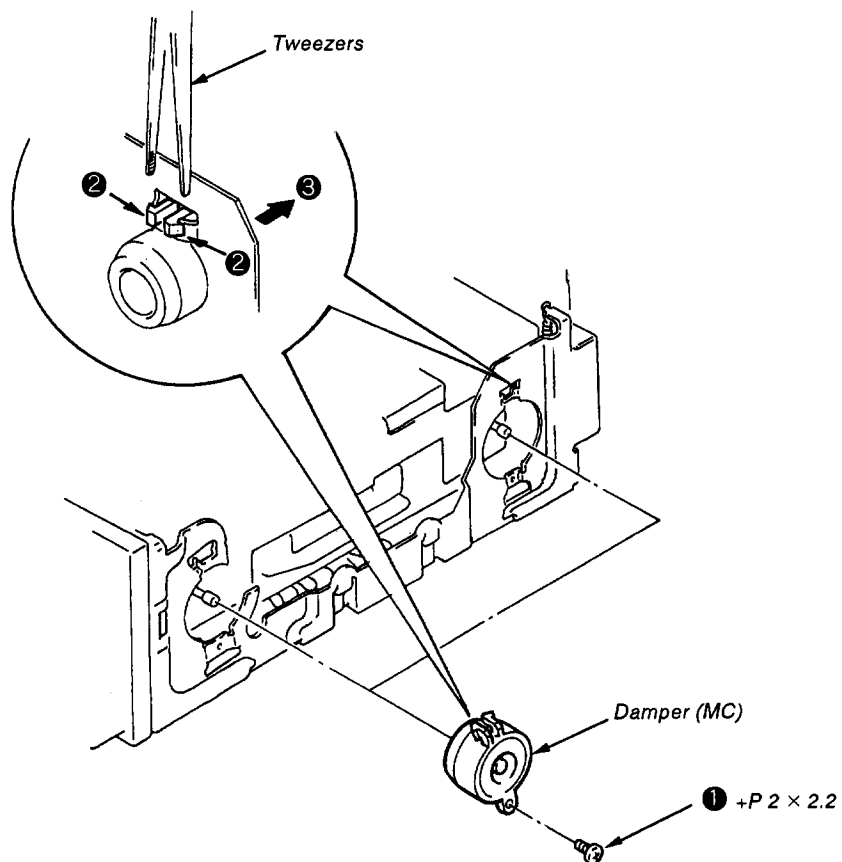
### 1-2. FRONT PANEL ASSY



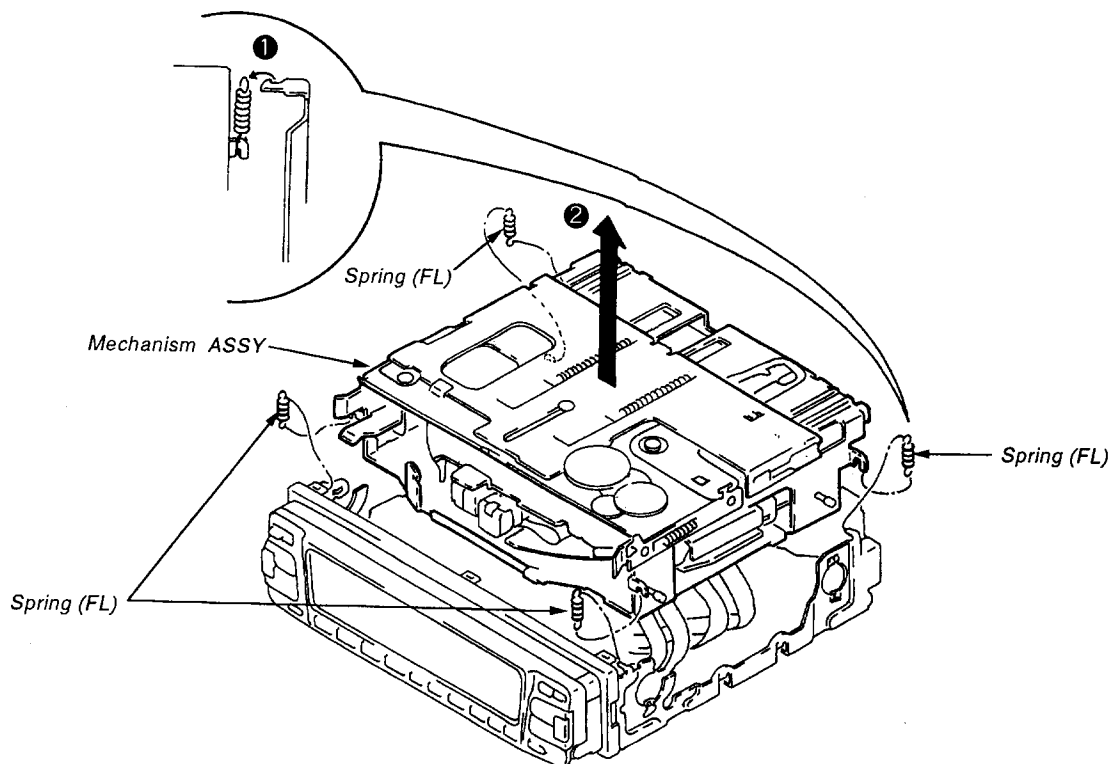
### 1-3. DISPLAY BOARD



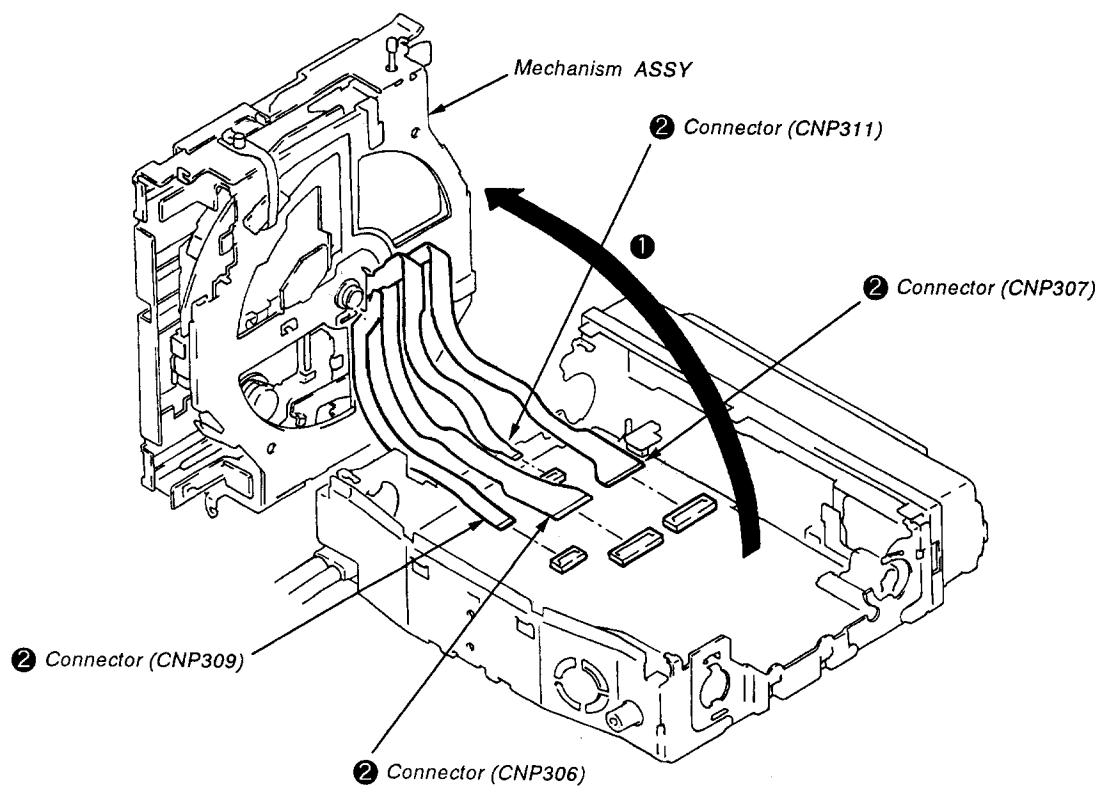
### 1-4. DAMPER (MC)



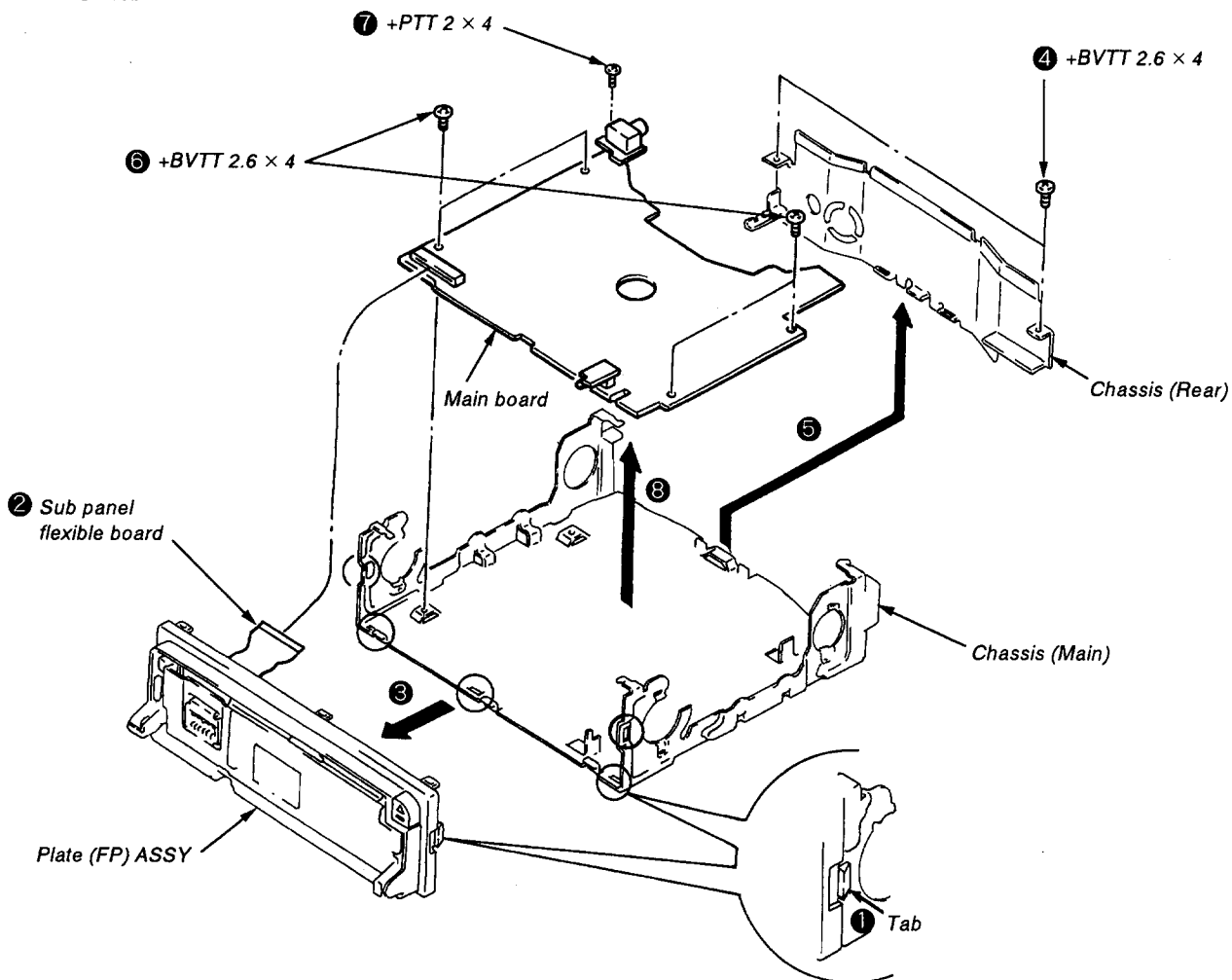
## 1-5. MECHANISM ASSY-1



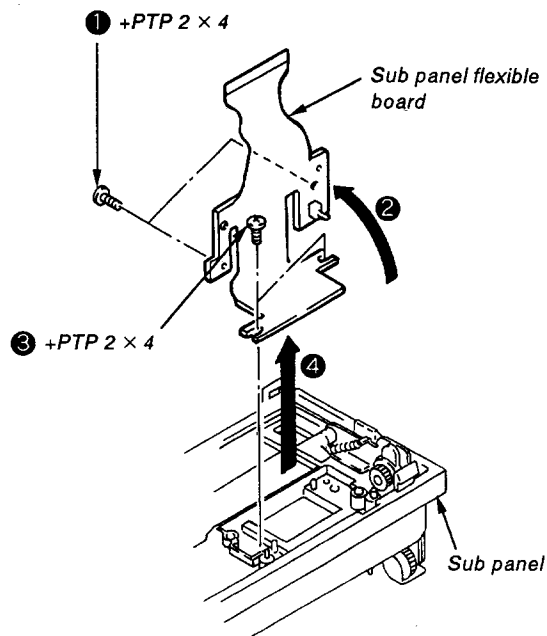
## 1-6. MECHANISM ASSY-2



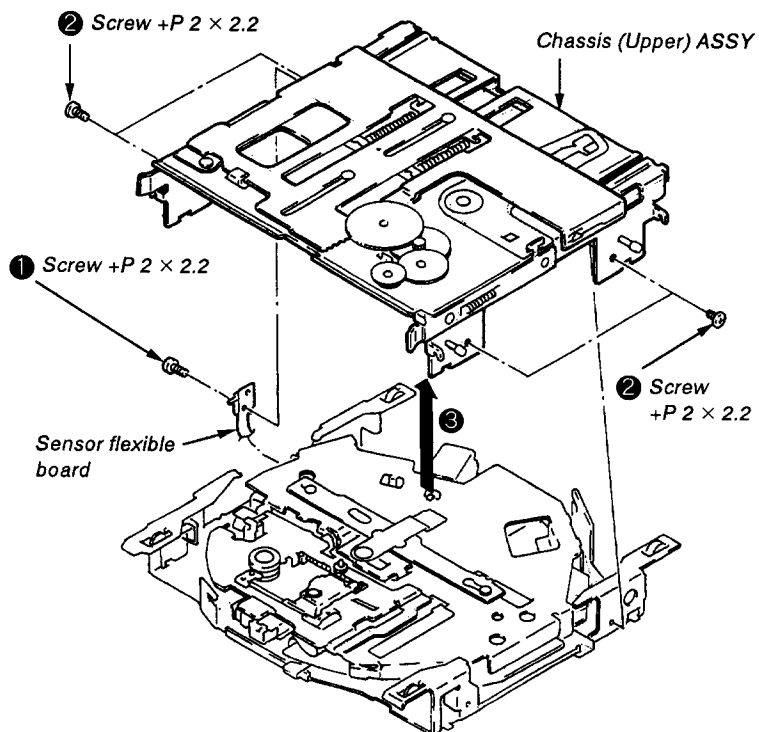
## 1-7. MAIN BOARD



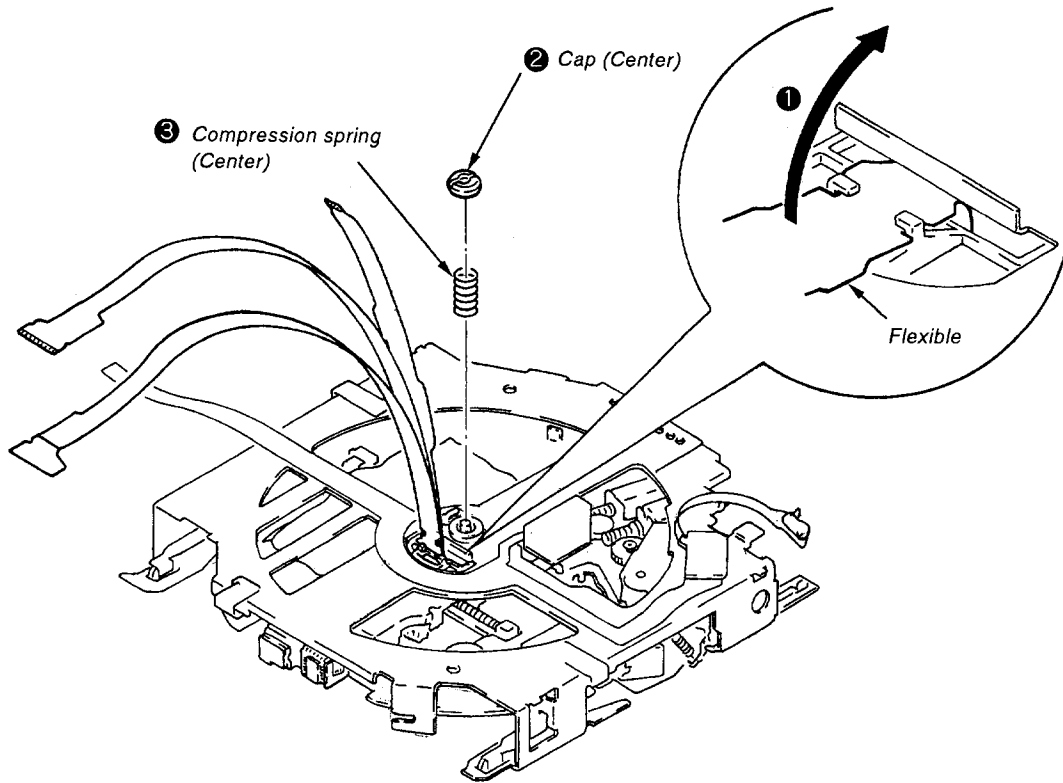
## 1-8. SUB PANEL FLEXIBLE BOARD



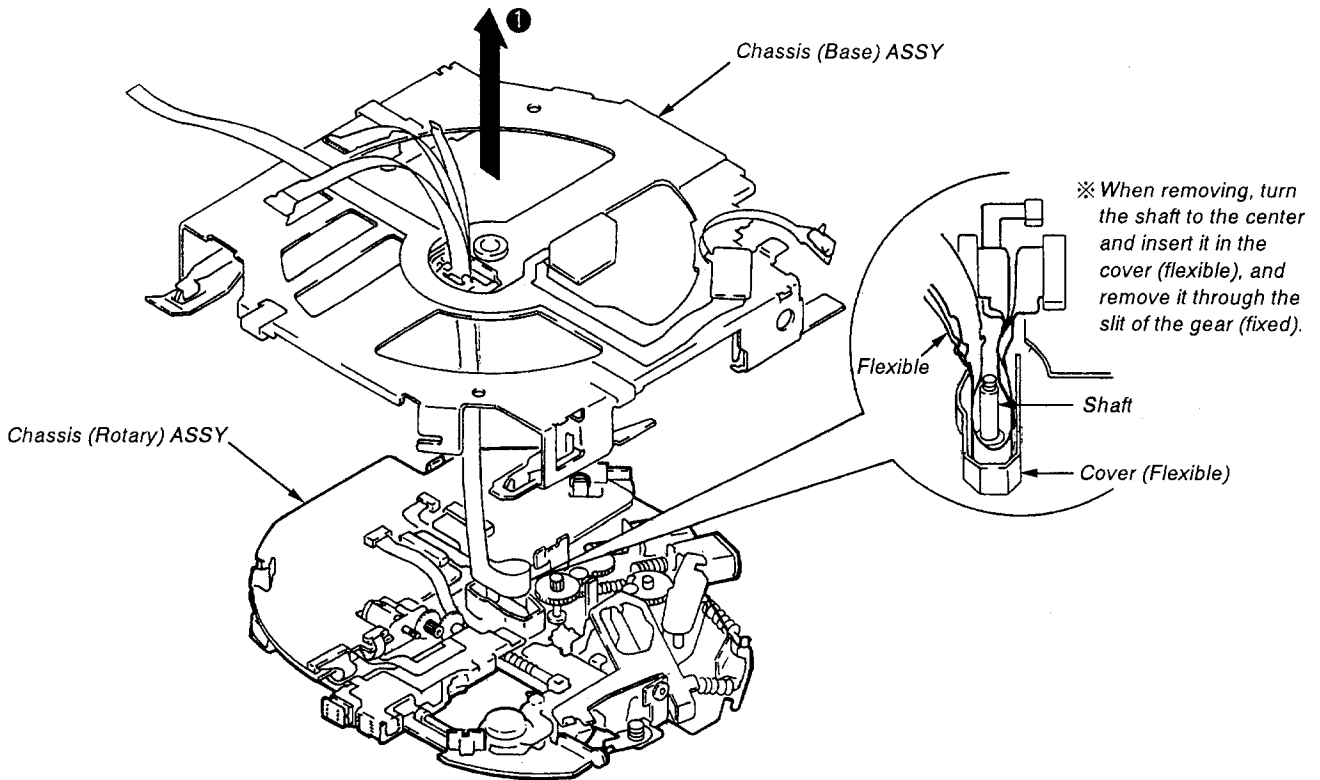
## 1-9. SENSOR FLEXIBLE BOARD, CHASSIS (UPPER) ASSY



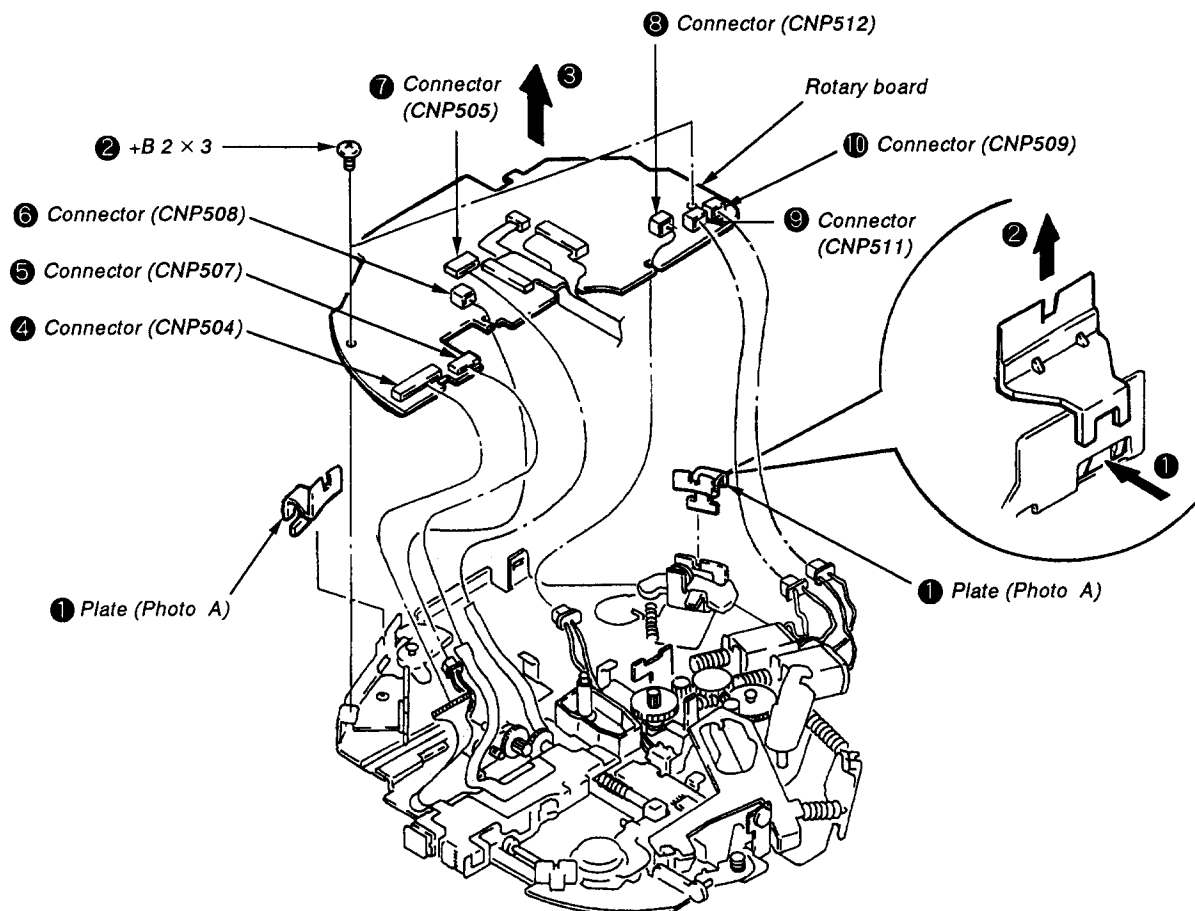
# 1-10. CHASSIS (ROTARY) ASSY-1



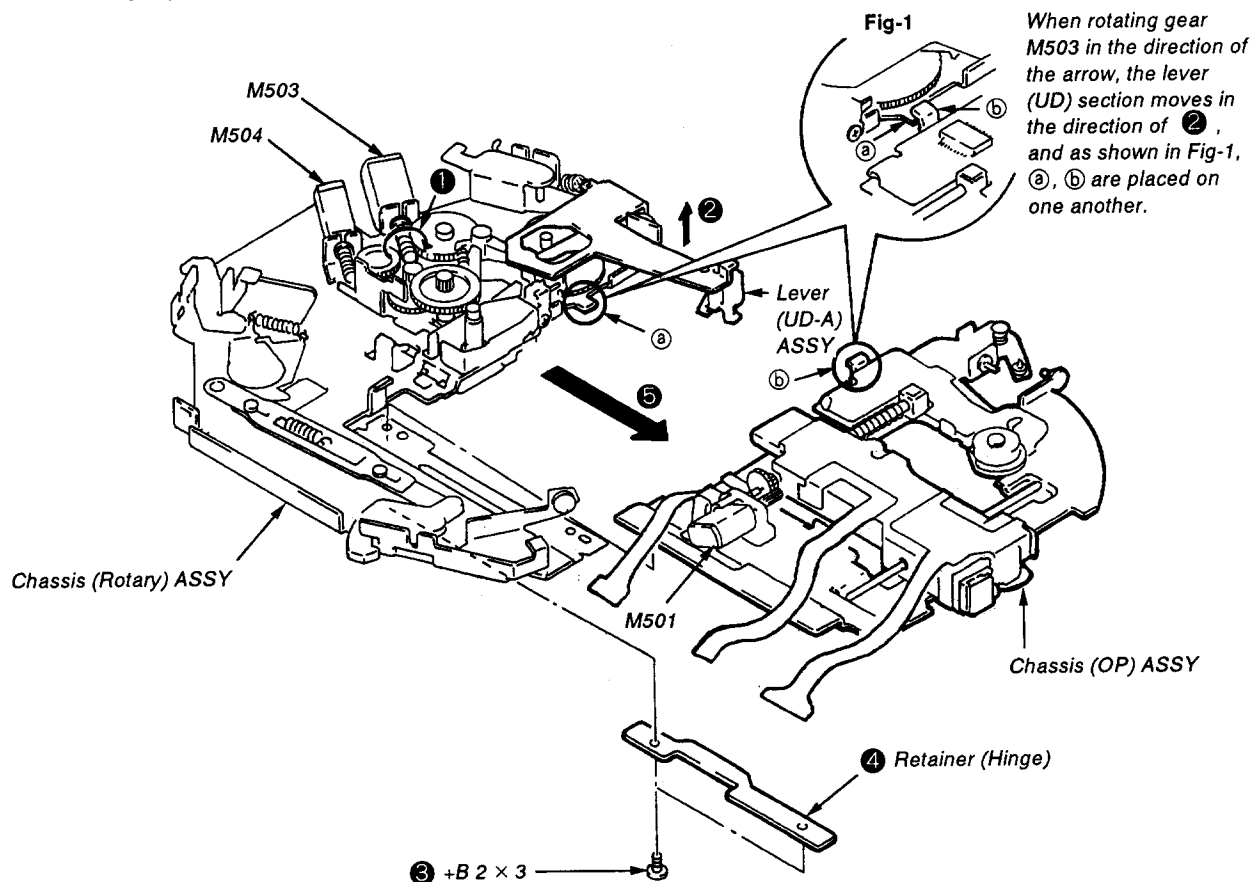
# 1-11. CHASSIS (ROTARY) ASSY-2



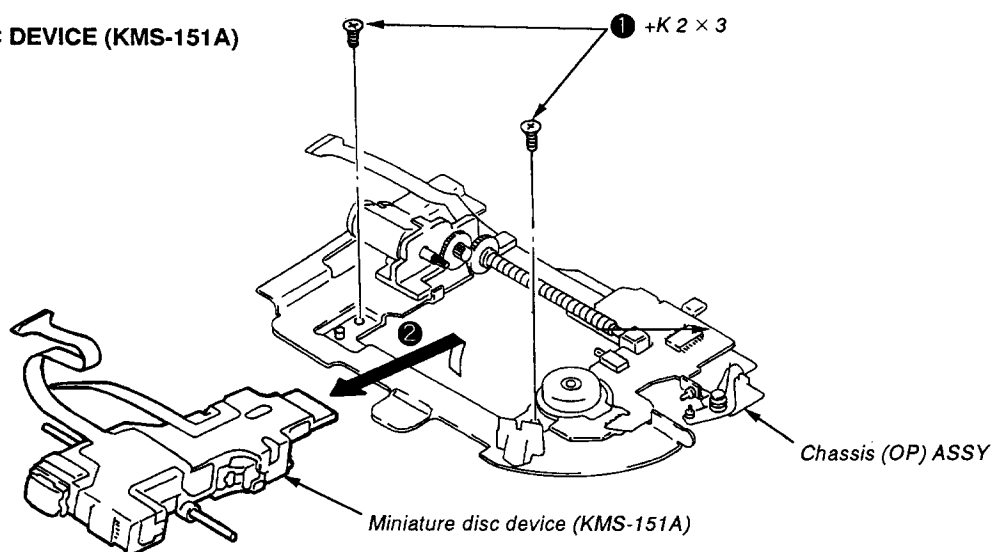
## 1-12. ROTARY BOARD



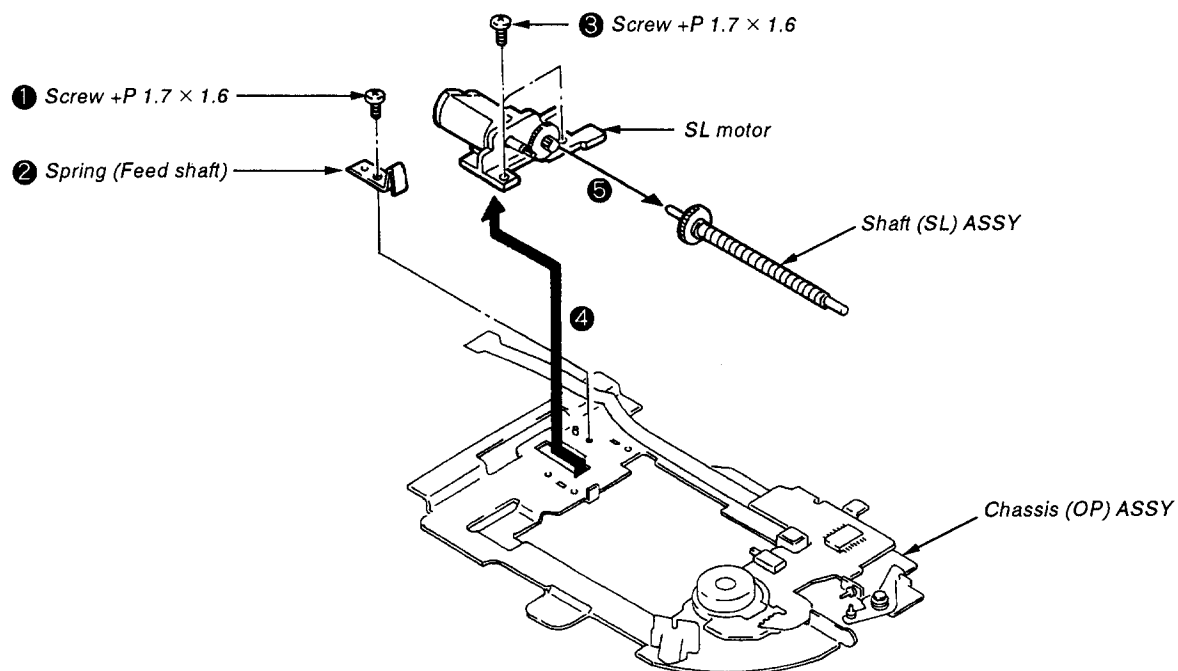
## 1-13. CHASSIS (OP) ASSY



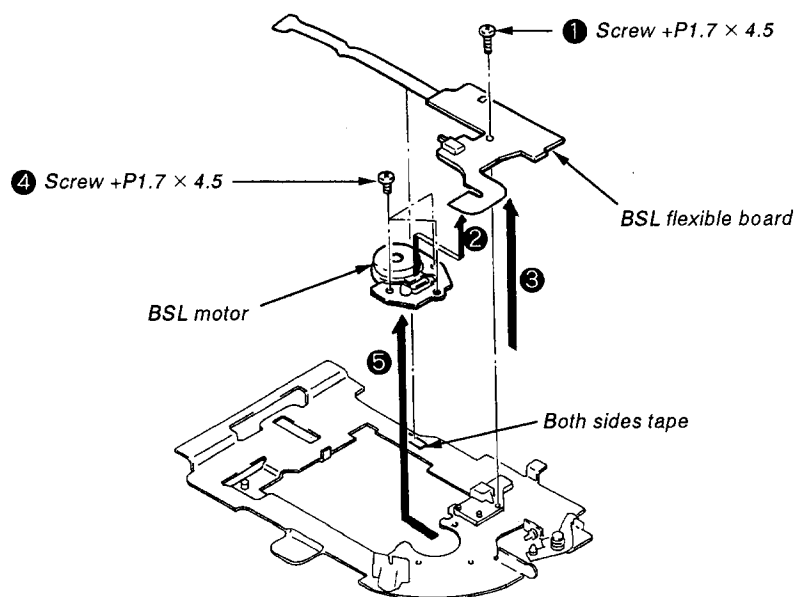
# 1-14. MINIATURE DISC DEVICE (KMS-151A)



# 1-15. SL MOTOR/SHAFT (SL) ASSY



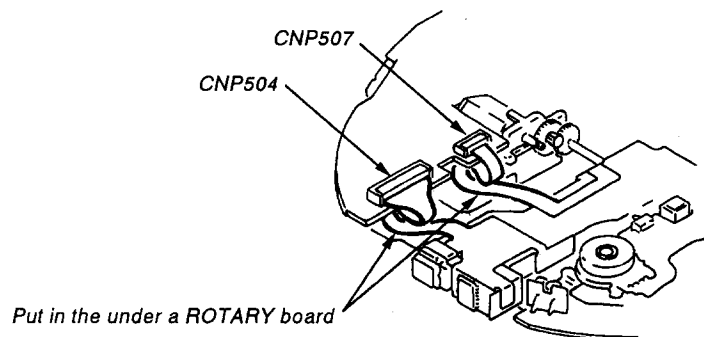
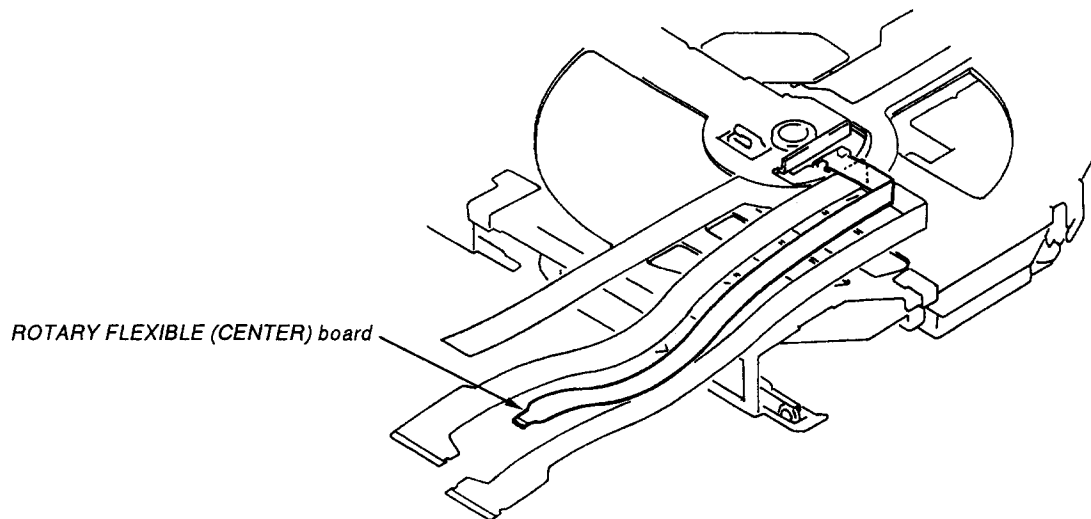
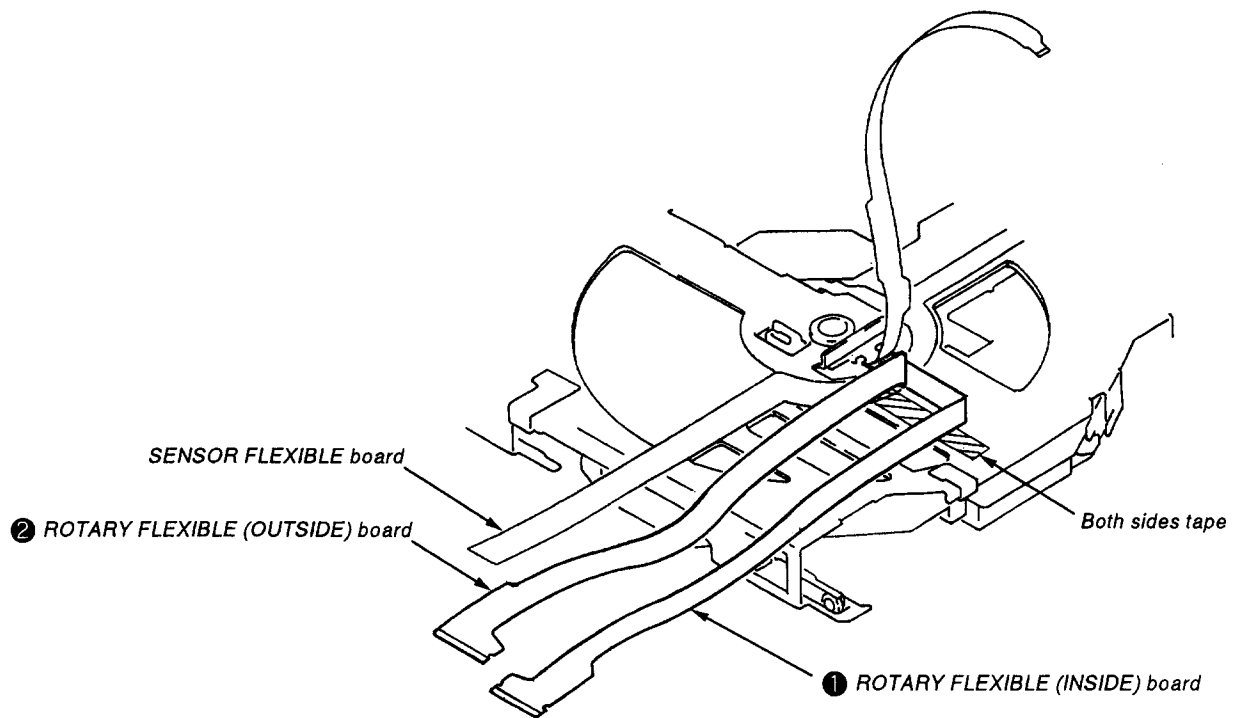
# 1-16. BSL MOTOR





## SECTION 2

### HOW TO BEND IN A ROTARY FLEXIBLE BOARD

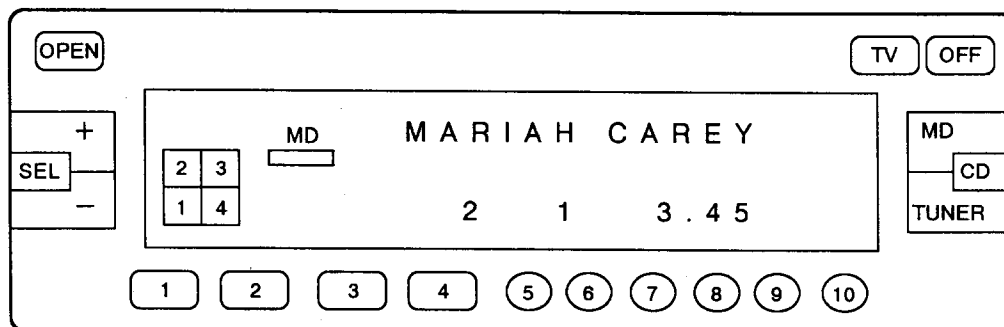


## SECTION 3

### TEST MODE

## OUTLINE OF TEST MODE

Mechanism and servo test mode are described here. Test mode can operate independently with only the mechanism deck, and it changes by the key input from nose panel. During test mode, ⑤ Pin (Lock) terminal of IC306 (CXD2525R) becomes interlocked with the display. The test mode is divided into MD test mode (indash test mode) and set test mode (test mode of the entire system).



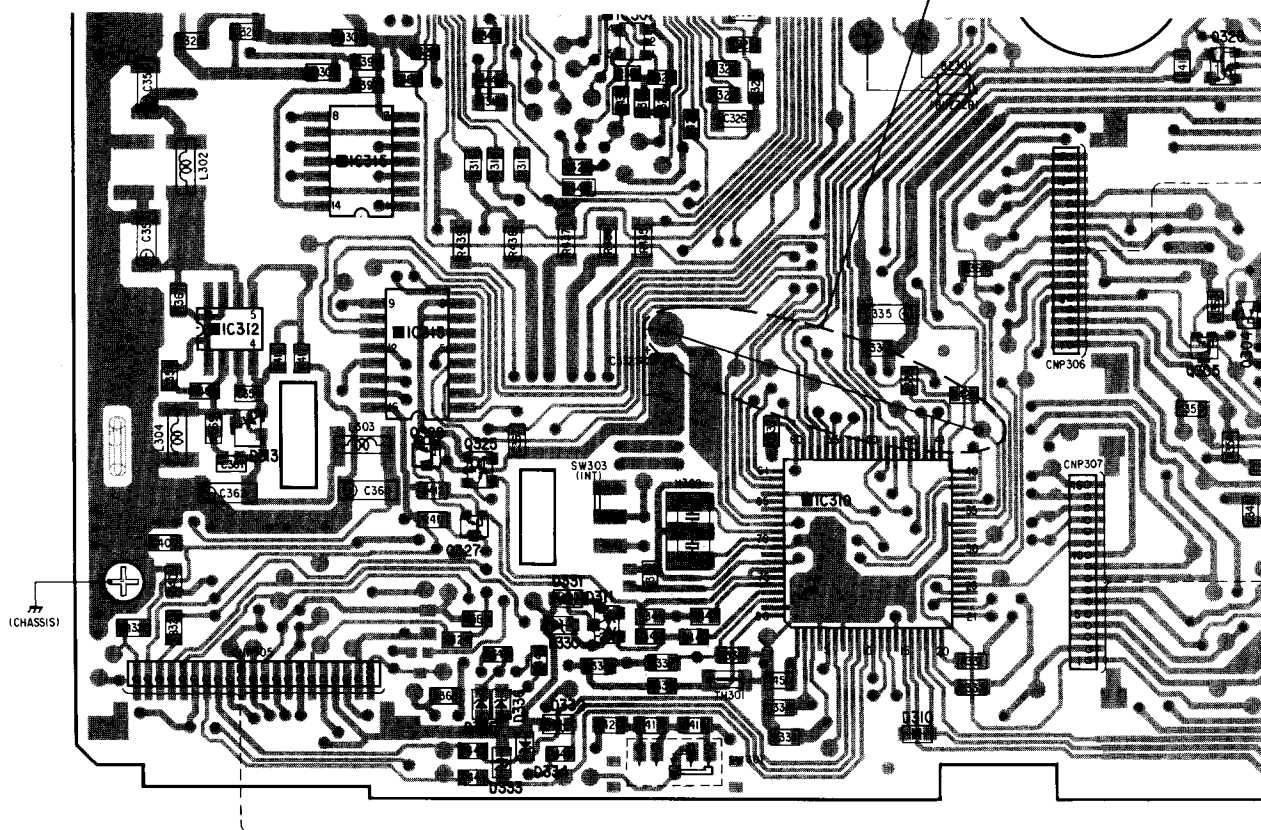
### Set (entire system) test mode setting

1. Press preset button **4**.
2. Press preset button **5**.
3. Press preset button **1** for about 2 seconds.
4. All ON appears on the display, and test mode becomes set.  
(To cancel the test mode, press **OFF** button or **RESET** button of HIDEWAY.)

### Setting of MD (indash) test mode

1. Connect ③⑤ Pin of IC310 to +5V as shown in the following diagram ( ③⑤ Pin=H).
2. Press the reset button of HIDEWAY.
3. Test mode appears on the display, and test mode becomes set.  
(To cancel the test mode, disconnect ③⑤ Pin of IC310.)

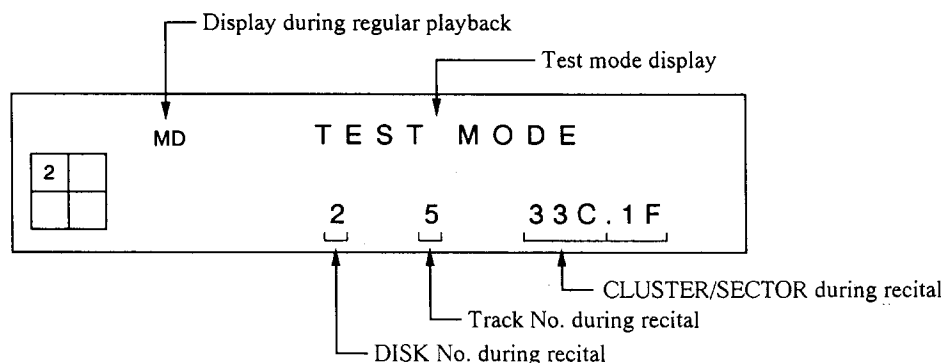
Connect ③ Pin of IC310 to +5V.



### 1. Playback Test Mode (Set (entire system) at the time of test mode and MD (indash) test mode)

No.	Key input	Operation
1	Press <b>MD</b> button	Regular playback test mode becomes set.
2	Press <b>1</b> button	AMS down occurs.
	Press <b>2</b> button	AMS UP occurs.
	Press <b>3</b> button	PLAY mode (SHUFFLE OFF/INTRO SHUFFLE 2)
	Press <b>4</b> button	MD stops.

Display appears as follows during playback.



### 2. Mechanism/Servo Test Mode (MD (indash) at the time of test mode)

No.	Key input	Operation
1		Mechanism/servo test mode
2	Press <b>1</b> button	High speed FOCUS serch/CLV ON.
	Press <b>2</b> button	TRACKING SLED ON (CLVP)/OFF (CLVS) (Can be pressed only when FOCUS ON)
	Press <b>3</b> button	Point feed during SLED (300ms peripheral feed, after innermost peripheral feed)
	Press <b>4</b> button	Servo STOP
	Press <b>5</b> button	Pre-MD LD ON/OFF (Switches over every time pressed)
	Press <b>6</b> button	Rec-MD LD ON/OFF (Switches over every time pressed)
	Press <b>7</b> button	SLED FW (While pressed)
	Press <b>8</b> button	SLED RVS (While pressed)
	Press <b>9</b> button	DISC chucking/release (State reversed every time pressed)
	Press <b>10</b> button	DISC UP (1 - 2 - 3 - 4 - 1 address set, every time when pressed)
3	Press <b>OFF</b> button	Causes test mode off/reset.

## SET (ENTIRE SYSTEM) TEST MODE

### PRE AMP TEST MODE

Test mode of PRE AMP is valid when there is either SOURCE ON, during test mode.

[\*\* (K)] in the following notation indicates main unit button, and [\*\* (R)] indicates rotary command.

#### (1) Switching over the VOLUME LEVEL with SOURCE button

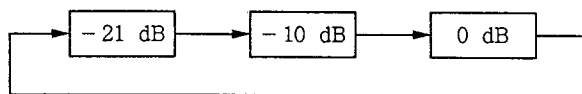
- The VOL LEVEL given in the following table can be set by switching over each SOURCE, after turning ON the [SOURCE (R)] button or [MD (K)] [TUNER (K)] [CD (K)] [TV (K)].

SOURCE	VOLUME
TAPE	0 dB
TUNER	- 21 dB
CD	- 10 dB
MD	- 10 dB
TV	- 10 dB

※ BAS, TRE, BAL, & FAD are all center at the time of switching over SOURCE.

#### (2) Switching over the VOLUME LEVEL with LEVEL +/ - button

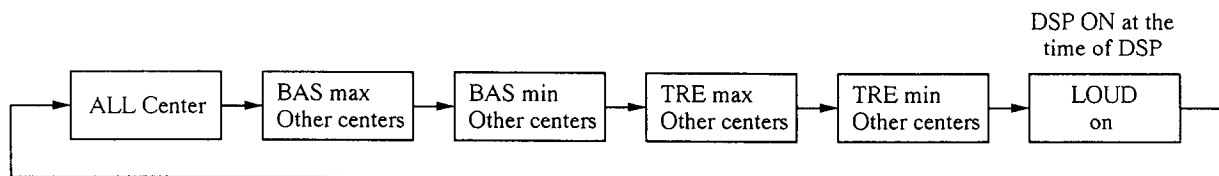
- The LEVEL changes as given below by every time pressing the [LEVEL + (K) (R)] button (regular VOL+, at the time of DSP connection).



- LEVEL - (K) (R)] button executes regular operation.

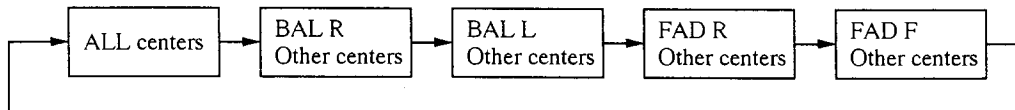
#### (3) Switching over the BASS/TREBLE LOUD with [SELECT (K) (R)] button

- The following switch over takes place, by every time pressing the [SELECT (K) (R)]



#### (4) Switching over the BALANCE/FADER with [MUTE] button

- The following switch over takes place, by every time pressing the [MUTE (K) (R)] button.



## SECTION 4 ELECTRICAL ADJUSTMENTS

### Setting of Test Mode

1. Press **OFF** button (OFF state becomes set).
2. Press preset **4** button.
3. Press preset **5** button.
4. Press preset **1** button.
5. Entire display turns ON, and test mode is instated.

### RADIO SECTION

#### • CAUTIONS ON REPAIRS

If the front end becomes defective, replace it entirely because its internal repairs are rather difficult.

#### Setting :

DIVERSITY switch : OFF

POWER SEL switch : ON

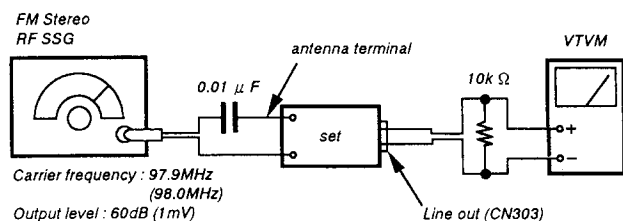
Connect the rotary commander jack to CN702.

### FM Noise Focus Adjustment

#### Setting :

no mark : MDX-400

( ) : MDX-400RDS



#### Procedure :

1. Set FM mode by pressing the **SOURCE** button of rotary commander.
2. Set 97.9MHz (98.0MHz) by pressing the preset **3** button.
3. Adjust the output to 0dB (1mV) by turning the **VOL** of rotary commander.
4. Adjust the TU1 built in semi-fixed resistor, so that the output becomes  $-30 \pm 2\text{dB}$ , when the output level of RF SSG is set at  $-20\text{dB}$ .

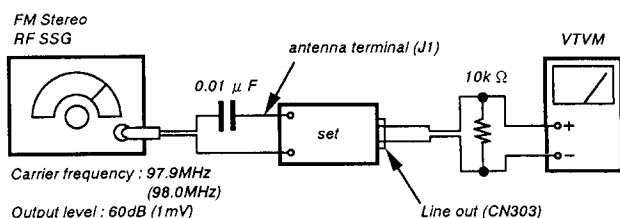
Adjusting Location : HIDEWAY board TU1

### High Cut Control Adjustment

#### Setting :

no mark : MDX-400

( ) : MDX-400RDS



#### Procedure :

1. Set FM mode by pressing the **SOURCE** button of rotary commander.
2. Set 97.9MHz (98.0MHz) by pressing the preset **3** button.
3. Adjust the output to 0dB (1mV) by turning the **VOL** of rotary commander.
4. Adjust the TU1 built in semi-fixed resistor, so that the output becomes  $-5 \pm 1\text{dB}$ , when the output level of RF SSG is set at  $-20\text{dB}$ .

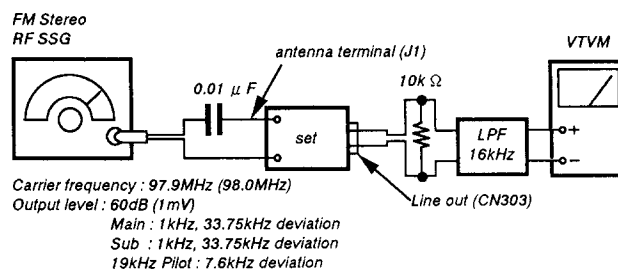
Adjusting Location : HIDEWAY board TU1

### FM Separation Adjustment

#### Setting :

no mark : MDX-400

( ) : MDX-400RDS



#### Procedure :

1. Set FM mode by pressing the **SOURCE** button of rotary commander.
2. Set 97.9MHz (98.0MHz) by pressing the preset **3** button.
3. Adjust the output to 0dB (1mV) by turning the **VOL** of rotary commander.
4. Adjust the separation of line out to its best level, by turning the TU1 built-in semi-fixed resistor.

FM Stereo SSG output channel	Connection of VTVM	Reading VTVM (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ <sup>Ⓐ</sup> Adjust the reading of VTVM to its minimum level, by turning the TU1 built-in semi-fixed resistor.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ <sup>Ⓒ</sup> Adjust the reading of VTVM to its minimum level, by turning the TU1 built-in semi-fixed resistor.

L-CH Stereo separation : Ⓐ - Ⓑ

R-CH Stereo separation : Ⓒ - Ⓓ

The separation values of both channels should be approximately identical.

Reference value : 27dB or more

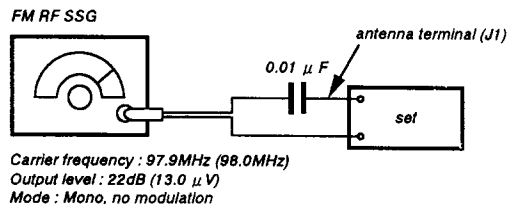
Adjusting Location : HIDEWAY board TU1

## FM Auto Scan/Stop Level Adjustment

### Setting :

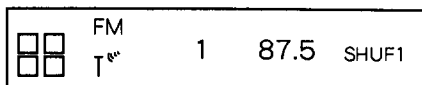
no mark : MDX-400

( ) : MDX-400RDS

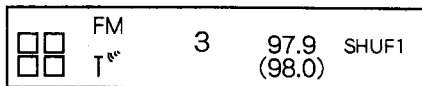


### Procedure :

1. Set test mode (See page 10).
2. Set FM mode by pressing the **SOURCE** button of rotary commander.



3. Press preset **3** button.



4. Adjust the TU1 built-in semi-fixed resistor, so that the display shows "0".

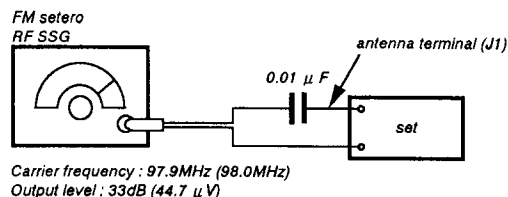
Adjusting Location : HIDEWAY board TU1

## S-Meter Adjustment

### Setting :

no mark : MDX-400

( ) : MDX-400RDS



### Procedure :

1. Set test mode (See page 10).
2. Set FM mode by pressing the **SOURCE** button of rotary commander.
3. Press preset **10** button.



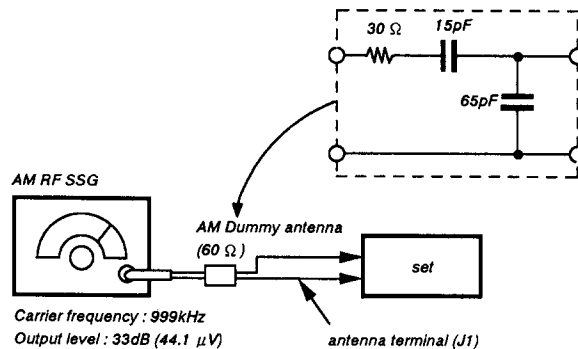
4. Adjust RV601, so that the display value becomes "13.2 ± 0.2".

Adjusting Location : HIDEWAY board TU1

## AM Auto Scan/Stop Level Adjustment

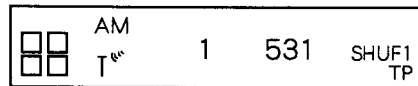
**Caution :** Make this adjustment, after adjusting the FM auto scan stop level adjustment.

### Setting :

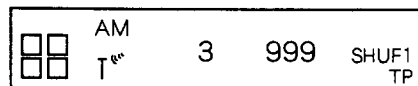


### Procedure :

1. Set test mode (See page 10).
2. Set FM mode by pressing the **SOURCE** button of rotary commander.



3. Press preset **3** button.

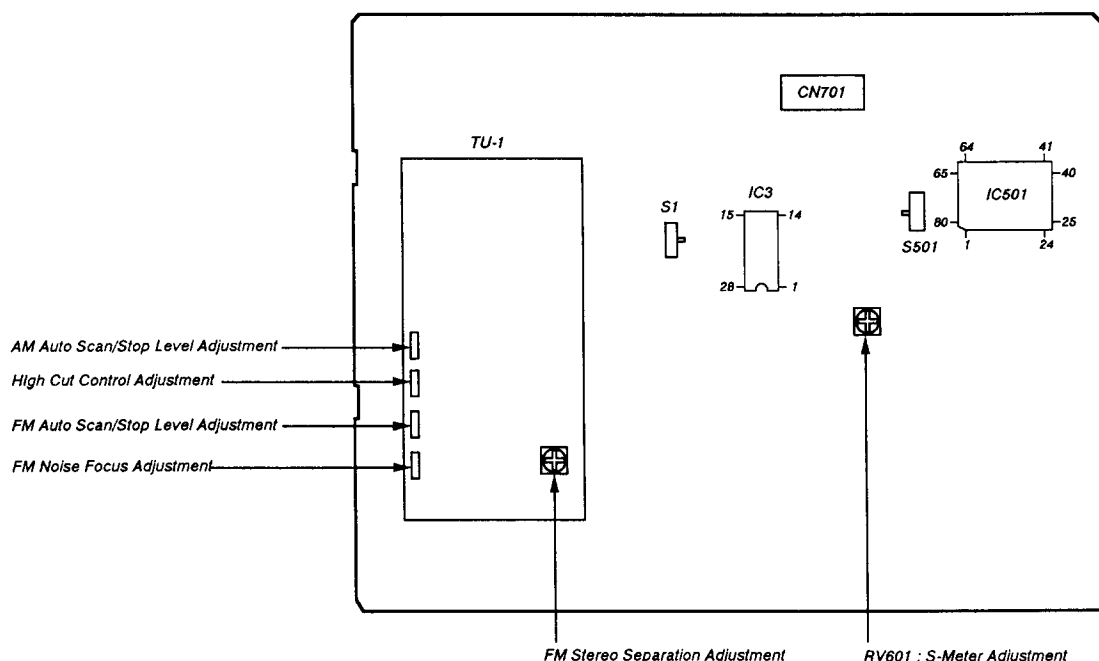


4. Adjust the TU1 built-in semi-fixed resistor, so that the display shows "0".

Adjusting Location : HIDEWAY board TU1

## Adjustment Location :

**[HIDEAWAY BOARD]** (Component side)



## MD SECTION MD (indash) Test Mode

### Prior to Adjustment

1. Set test mode (See page 10).
2. The functions of each button at this time are as per mechanism/servo test mode (See page 11).
3. Make all the adjustments in test mode, as in the given order.

### FOK OFFSET Adjustment

1. Connect VOM between IC504 ① (VR) and ③ (ABCD).
2. Press **[6]** (LASER ON), and adjust RV501 so that the VOM reading becomes  $-200 \pm 10\text{mV}$ .
3. Press **[4]** (STOP).

### Laser Power adjustment

#### ● Method using the laser power meter

1. Turn ON the laser by pressing **[6]**.
2. Adjust the position of SLED by pressing **[3]**.  
Adjust RV506 so that a laser output of  $810 \pm 5 \mu\text{W}$  is obtained with 780nm setting.

#### ● Method using EYE PATTERN

Set a playback DISC (Pre-master DISC), turn ON PLAY, and adjust RV506 so that 1.4Vp-p is obtained.

### MO Focus Bias Adjustment

1. Connect VOM between IC504 ① (VR) and ② (FE).
2. Press **[6]** (LASER ON), and adjust RV504 so that the VOM reading becomes  $-300 \pm 10\text{mV}$ .
3. Press **[4]** (STOP).

### PIT Focus Bias Adjustment

1. Connect VOM between IC504 ① (VR) and ② (FE).
2. Turn ON the laser by pressing **[5]** (LASER ON).
3. Adjust RV505 so that the VOM reading becomes  $-100 \pm 10\text{mV}$ .
4. Press **[4]** (STOP).

### PIT E-F Balance Adjustment

1. Connect VOM between IC504 ① (VR) and ④ (TE).
2. Set DISC (PIT).
3. Press **[1]** (FOCUS ON), and adjust RV502 so that the VOM reading becomes  $-0 \pm 10\text{mV}$  (Check both playback DISC and MO DISC).

### MO E-F Balance Adjustment

1. Connect VOM between IC504 ① (VR) and ④ (TE).
2. Set DISC (MO).
3. Press **[1]** (FOCUS ON), and adjust RV503 so that the VOM reading becomes  $-0 \pm 10\text{mV}$  (Check both playback DISC and MO DISC).

## Focus/Tracking Gain Adjustment

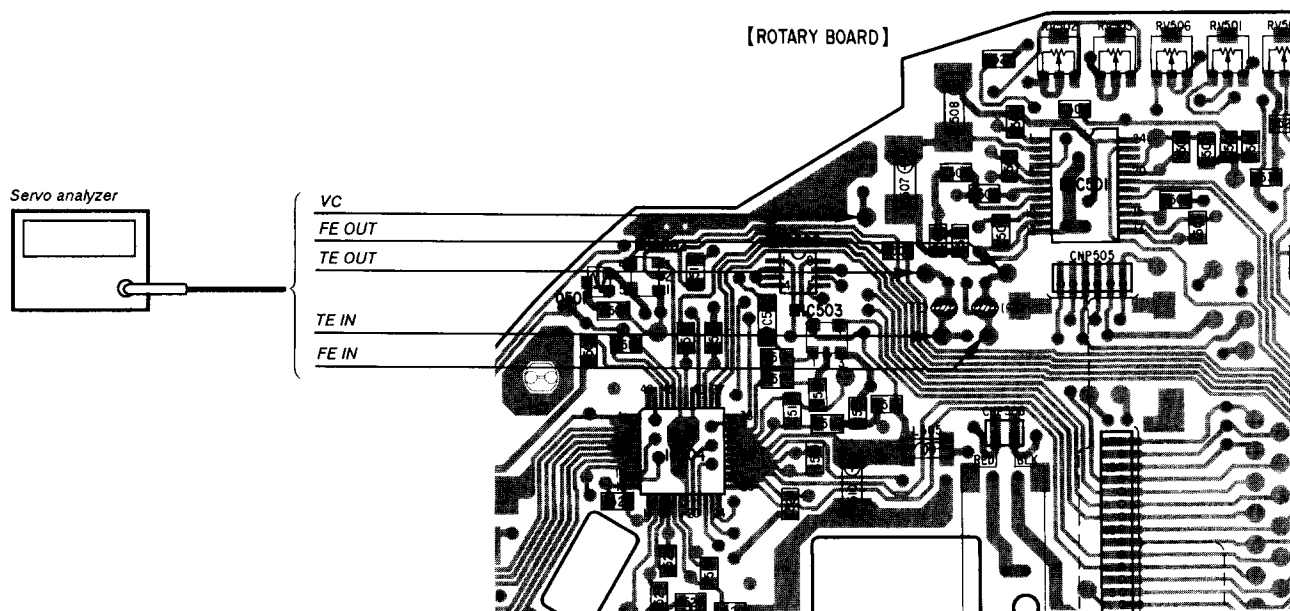
- Servo analyzer is needed to make this adjustment accurately.

### Method of connecting to servo analyzer :

1. Disconnect the 2 soldered jumpers of TE & FE, and connect the servo analyzer as shown in the following diagram. At this time, connect IC504 to the output of servo analyzer, and the volumes to the input of servo analyzer.
2. Set the disturbance of servo analyzer at 1.2kHz, 50mV.

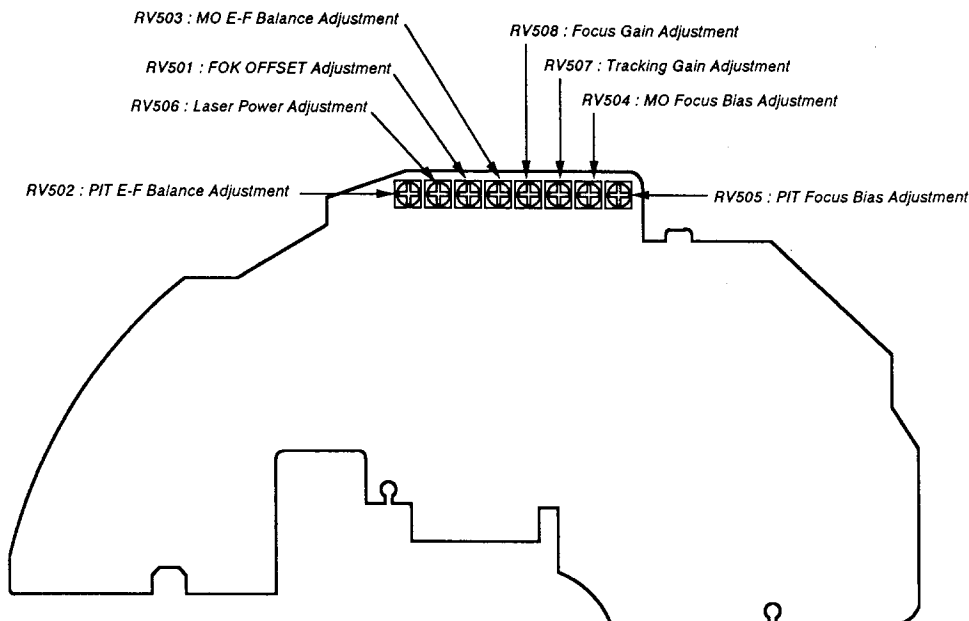
### Procedure :

1. Insert MO disc (SONY 60 minute) in its magazine, and place it in the set.
2. Set MD (indash) test mode (See page 10).
3. Turn ON the FOCUS and CLV by pressing **[1]**.
4. Turn on the tracking servo by pressing **[2]**, and adjust RV507 (Tracking Gain Adjustment) and RV508 (Focus Gain Adjustment) so that both the tracking and focus become  $-1 \pm 0.5$  dB.
5. Disconnect the servo analyzer, and short the 2 soldered jumpers of TE & FE.



### Adjustment Location :

**[ROTARY BOARD]** (Conductor side)





## SECTION 5

### EXPLANATION OF IC TERMINALS

#### IC2 LC7216M (HIDEAWAY BOARD)

Pin No.	Pin name	I/O	Description
1	XIN	I	Connected to quartz oscillator. (7.2MHz)
2	CE *	—	Chip enable input terminal. Connected to MN1882417 (tuner micro computer) PLL-CE ④ pin
3	DATA *	I	Data input terminal. Connected to MN1882417 (tuner micro computer) PLL-DO ③ pin.
4	CLK *		Clock input terminal. Connected to MN1882417 (tuner micro computer) PLL-CLK ④ pin.
5	DATAO		Data output terminal. Connected to MN1882417 (tuner micro computer) PLL-DI ③ pin.
6 – 9	NC	—	Not used. (OPEN)
10	MONO	I	Forcible MONO switch over input terminal.
11	DX/ $\overline{LO}$		Output terminal for DX/LO switch over. Outputs “L” level, at the time of LOCAL. ② pin of MN1882417 (tuner micro computer) and active have the same output timing, except that they are reverse.
12	SEEK		FM IF COUNT Request terminal. Outputs “H” level at the time of taking the IF count of FM band; and output “H” level only at the time of operation needed for IF count of SEEK, BTM, etc.
13	AMIF		AM IF Signal input terminal. SC=0, SF=1, AF IF counter 15 to 500kHz (70mV rms min)
14	FMIF		FM IF Signal input terminal. SC=1, FM IF counter 10 to 60MHz (70mV rms min)
15	AMDSC	I	AM Local oscillation signal input terminal. DV=0 2 – 40kHz (70mV rms min) : SP=1 0.5 – 10kHz (70mV rms min) : SP=0
16	FMDSC	I	FM Local oscillation signal input terminal. DV=1, 10 – 130MHz (70mV rms min)
17	VDD	—	Power terminal. (4.5V – 6.5V)
18	PD	O	Charge pump output terminal.
19	Vss	—	GND Terminal.
20	XOUT	O	Connected to quartz oscillator. (7.2MHz)

\* “H” Level & “L” level input voltages of CE, CL, DI terminals are  $V_H=2.2 - 6.5V$  &  $V_L=0.0-0.7V$ , regardless of the power supply voltage.

**IC501  $\mu$ PD75517GF-255-3B9 (HIDEAWAY BOARD)**

Pin No.	Pin name	I/O	Description
1	KEY IN1	I	JOY STICK Remote control key input No. 0 by A/D conversion. * Refer to 1 (80) Pin.
2	VREF	I	Reference voltage input terminal of A/D conversion input. (5V)
3	Vcc	—	POWER Terminal of u-COM.
4	Vcc	—	POWER Terminal of u-COM.
5	KEY-ACTIVE	O	POWER ON/OFF switch over of A/D key. High = POWER ON, Low = POWER OFF
6	AMP-REM	O	Switch of AMP remote output. High = AMP-REM ON, Low = AMP-REM OFF
7	ANT-REM	O	Output for antenna remote. High = TUNER or TV ON, Low = Else
8	NC	—	Not used. (OPEN)
9	MUTE	O	Mute of HEAD UNIT internal. Stopped at the time of High=SOURCE switch over, and playing while Low
10	AUX-MUTE	O	Mute of UNI-LINK slave unit High internal slave playing, Low = Slave unit playing or stopped
11, 12	NC	—	Not used. (OPEN)
13	SUB-CLK	O	Serial CLOCK for SUB-VOL IC.
14	SUB-DATA	O	Serial DATA for SUB-VOL IC.
15	SUB-CE	O	CE for SUB-VOL IC.
16	NC	—	Not used.
17	LOUD	I	INITIAL Input terminal for LOUD/NO LOUD. Hi = NO LOUD, Low = LOUD
18	SUB-VOL	I	INITIAL Input terminal for SUB-VOL/NO SUB-VOL. Hi = NO SUB-VOL, Low = SUB-VOL
19	TV	—	Not used. (OPEN)
20	TIME POL	I	INITIAL Input terminal for TIME POLING/NO TIME POLING. Hi = NO TIME POLING, Low = TIME POLING
21	VOL-CE	O	Terminal to output CHIP ENABLE to E-VOLUME. (CXA1846M)
22	NC	—	Not used. (OPEN)
23	VOL-CLK	O	Terminal to output CLOCK to E-VOLUME. (CXA1846M)
24	VOL-DATA	O	Terminal to output DATA to E-VOLUME. (CXA1846M)
25 – 28	NC	—	Not used. (OPEN)
29	NC	—	Not used. (GND connection, in this device)
30	CAUTION	I	INITIAL Input terminal for CAUTION ALARM/NO CAUTION ALARM. Hi = NO CAUTION ALARM, Low = CAUTION ALARM
31	PORALITY	—	Not used. (GND connection, in this device)
32	NC	—	Not used. (GND connection, in this device)
33	Vss	—	GND Terminal of u-COM.
34 – 40	NC	—	Not used. (OPEN)
41	$\overline{\text{BUS ON2}}$	O	Terminal to control the ACTIVE of UNI-LINK (AUX side) High= BUS SLEEP, Low= BUS ACTIVE
42	$\overline{\text{SYS-RESET}}$	O	System reset terminal of UNI-LINK.
43	$\overline{\text{BUS ON1}}$	O	Terminal to control the ACTIVE of BUS of UNI-LINK. (MD side) High = BUS SLEEP, Low = BUS ACTIVE
44	CLK OUT	O	Clock output terminal of UNI-LINK.
45	BEEP	O	BEEP Output. Outputs a rectangular wave, when BEEP output requested.

Pin No.	Pin name	I/O	Description																																										
46	ACC-CHECK	I	ACC SW Input terminal. High = ACC OFF, Low = ACC ON																																										
47	KEY-ACK	I	Builds up from Low to High when KEY IN0 or KEY IN1 ispressed, while KEY-ACTIVE=LOW. Always HIGH, when KEY-ACTIVE=HIGH.																																										
48, 49	NC	—	Not used. (GND connection, in this device)																																										
50	DATA IN	I	DATA in Terminal of UNI-LINK.																																										
51	DATA OUT	O	DATA out Terminal of UNI-LINK.																																										
52	CLK IN	I	CLOCK output of UNI-LINK. Input from ④ Pin.																																										
53	B/U-CHECK	I	Terminal for BACK UP CHECK. High = BACK UP ON, Low = BACK UP OFF																																										
54	Vss	—	GND Terminal of u-COM.																																										
55	NC	—	Not used. (GND connection, in this device)																																										
56	NC	—	Not used. (OPEN)																																										
57	Vss	—	GND Terminal.																																										
58	X1	I	Terminal for main system clock. (4.19MHz)																																										
59	X2	O	Terminal for main system clock. (4.19MHz)																																										
60	RESET	I	Reset terminal of u-COM.																																										
61 – 64	NC	—	Not used. (OPEN)																																										
65	NC	—	Not used. (GND connection, in this device)																																										
66	TEL-MUTE	I	TELEPHONE Mute input. Attaches – 20dB antenna to the audio output, with Low input.																																										
67	SEL	—	Not used. (GND connection, in this device)																																										
68 – 72	NC	—	Not used. (OPEN)																																										
73	A•GND	—	GND Input terminal of A/D conversion input. (0V)																																										
74	NC	—	Not used. (GND connection, in this device)																																										
75	P-SEL. SW	I	POWER select SW input. High = POWER SEL ON, Low = POWER SEL OFF																																										
76, 77	NC	—	Not used. (GND connection, in this device)																																										
78	DSET•SEL	—	Not used.																																										
79	NC	—	Not used. (GND connection, in this device)																																										
80	KEY-IN0	I	YOY STICK Remote control key input No. 1 by A/D conversion. <table><tr><th>Voltage Value</th><th>KEY-IN1 (① PIN)</th><th>KEY-IN0 (⑩ PIN)</th></tr><tr><td>0V</td><td colspan="2">SENS/BTM, SCRL/REC DATE</td></tr><tr><td>0.37V</td><td colspan="2">SOURCE</td></tr><tr><td>0.76V</td><td colspan="2">MUTE</td></tr><tr><td>1.15V</td><td colspan="2">MODE</td></tr><tr><td>1.54V</td><td>PRESET+/DISC+</td><td>PRESET+/DISC+</td></tr><tr><td>1.93V</td><td>PRESET – /DISC –</td><td>PRESET – /DISC –</td></tr><tr><td>2.29V</td><td>LEVEL+</td><td>LEVEL+</td></tr><tr><td>2.73V</td><td>LEVEL –</td><td>LEVEL –</td></tr><tr><td>3.05V</td><td>SEEK+/AMS+</td><td>SEEK+/AMS+</td></tr><tr><td>3.46V</td><td>SEEK – /AMS –</td><td>SEEK – /AMS –</td></tr><tr><td>3.81V</td><td colspan="2">OFF</td></tr><tr><td>4.22V</td><td colspan="2">SELECT</td></tr><tr><td>4.61V</td><td colspan="2">DSPL</td></tr></table>	Voltage Value	KEY-IN1 (① PIN)	KEY-IN0 (⑩ PIN)	0V	SENS/BTM, SCRL/REC DATE		0.37V	SOURCE		0.76V	MUTE		1.15V	MODE		1.54V	PRESET+/DISC+	PRESET+/DISC+	1.93V	PRESET – /DISC –	PRESET – /DISC –	2.29V	LEVEL+	LEVEL+	2.73V	LEVEL –	LEVEL –	3.05V	SEEK+/AMS+	SEEK+/AMS+	3.46V	SEEK – /AMS –	SEEK – /AMS –	3.81V	OFF		4.22V	SELECT		4.61V	DSPL	
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**IC601 MN1882417SNV (HIDEAWAY BOARD)**

Pin No.	Pin name	I/O	Description
1 – 6	NC	–	Not used. (OPEN)
7	V <sub>DD</sub>		Power input terminal.
8	X1		Oscillator connection terminals of 8MHz connected.
9	X2		
10	GND		GND Terminal.
11	XTI		Not used. (OPEN)
12	XTO		
13	NC	–	Connected to GND.
14	RESET		Reset input terminal. AND of RESET and SYSTEM-RESET is input.
15	RDS-CLK		Not used. (OPEN)
16	BU-CHECK	I	BACKUP Detection input terminal This is a terminal to detect back up, and it is used as an interruption. In case it is on the same chassis as the master micro computer, the circuit is set so that it turns to "H" level when $8.5 \pm 0.3V$ or more; and in case of HIDEAWAY it turns to "H" level when $7.7 \pm 0.3V$ or more.
17	BUS-ON	I	Bus interface bus on input terminal. Interruption terminal to detect ON/OFF of the bus.
18 – 29	NC	–	Not used. (OPEN)
30	RDS-DATA	I	RDS-DATA Input terminal.
31	FM. AMS. IN	I	Input terminal for detecting FM voice level. H : Level high, L : Level low
32	AM. ST. IN	I	AM Stereo detection input terminal.
33 – 35	NC	–	Not used. (OPEN)
36, 37	NC	–	GND Connection, in this device.
38	PLL-DI	I	PLL DATA Input terminal. Connected to the DATA-OUT terminal of PLL-IC.
39	PLL-DO	O	PLL DATA Output terminal. Connected to the DATA-IN terminal of PLL-IC.
40	PLL-CLK	O	PLL CLK Output terminal. Connected to the CLK-IN terminal of PLL-IC.
41	PLL-CE	O	PLL CE Output terminal. Connected to the CE-IN terminal of PLL-IC.
42	REQUEST	O	Bus interface REQUEST terminal. Issues H, at the time of requesting for communication.
43	LINK-OFF	O	Bus interface INT-LINK terminal. LINK-OFF, when H level. L level, when bus connected. * Shall be kept L-output as it is, if in linked state during clock STOP mode. Set to input state, when BU is turned OFF.
44	SCK	I	Bus interface CLK-IN terminal.
45	SI	I	Bus interface DATA-IN terminal.
46	SO	O	Bus interface DATA-OUT terminal.
47	V <sub>DD</sub>		Power terminal. (+5V)
48	AV <sub>DD</sub>		Power terminal of AD input terminal. (+5V)
49	VREF		Reference voltage input of AD port (+ side) : Supplied from AVREF of MASTER micro computer.
50, 51	NC	–	Not used (GND connection, in this device)
52	SRAM-RST	I	S-RAM RESET Input terminal.

Pin No.	Pin name	I/O	Description																																					
53	MUTE-SEL	I	Terminal to select the operation of MUTE. Refer to MUTE ⑥⑥ pin.																																					
54	MS-1	I	MODE Select input terminal. (for setting destination) <table><tr><th>MS0</th><th>MS1</th><th>Model</th></tr><tr><td>L</td><td>L</td><td>(FM+MW+LW) AEP</td></tr><tr><td>L</td><td>H</td><td>(FM+MW+SW) Germany</td></tr><tr><td>H</td><td>L</td><td>(FM+AM) US</td></tr><tr><td>H</td><td>H</td><td>(FM+AM) Japan</td></tr></table>	MS0	MS1	Model	L	L	(FM+MW+LW) AEP	L	H	(FM+MW+SW) Germany	H	L	(FM+AM) US	H	H	(FM+AM) Japan																						
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H	H	(FM+AM) Japan																																						
55	MS-0																																							
56	AM-S	I	Voltage value detection terminal of the S meter of AM (MW : SW : LW)/FM																																					
57	FM-S																																							
58, 59	NC	—	Not used. (GND connection, in this device)																																					
60	GND	—	Power GND.																																					
61	TUNER-ON	O	TUNER-ON Output terminal. Outputs H, while TUNER ON.																																					
62	DX/LO	O	<p>DX/LO Output terminal.</p> <p>Switches over between DX mode and LOCAL mode with commands from the master. FM Band, MW band, and SW (or LW) band each separately possess this mode. If there are multiple FM bands, like, FM1 &amp; FM2, they possess a single mode for FM1 &amp; FM2. Except for SW band, this terminal outputs matching to the mode, during the operations of SEEK, SCAN, etc (see table, below).</p> <table><tr><td rowspan="3">FM MW LW</td><td><table><tr><th>Mode \</th><th>Regular reception</th><th>SEEK 1st cycle</th><th>BTM 1st cycle</th><th>SEEK, 8TM 2nd cycle &amp; on</th><th>TP-AUTO SEEK 1st cycle</th></tr><tr><td>LO</td><td>DX output</td><td>LO output</td><td>LO output</td><td>DX output</td><td>LO output</td></tr><tr><td>DX</td><td>DX output</td><td>DX output</td><td>LO output</td><td>DX output</td><td>LO output</td></tr></table></td></tr><tr><td>SW</td><td><table><tr><th>Mode \</th><th>Regular reception</th><th>SEEK 1st cycle</th><th>BTM 1st cycle</th><th>SEEK, 8TM 2nd cycle &amp; on</th></tr><tr><td>LO</td><td>LO output</td><td>LO output</td><td>LO output</td><td>DX output</td></tr><tr><td>DX</td><td>DX output</td><td>DX output</td><td>LO output</td><td>DX output</td></tr></table></td></tr></table> <p><b>Note :</b> If a command to change this mode is received during SEEK, the output is immediately switched over. However, the frequency at the end of 1st cycle takes the SEEKSTART frequency, as reference.</p> <p><b>Ref :</b> A reverse PORT of ACTIVE is provided for the OUT4 ⑪ pin of PLL-IC.</p>	FM MW LW	<table><tr><th>Mode \</th><th>Regular reception</th><th>SEEK 1st cycle</th><th>BTM 1st cycle</th><th>SEEK, 8TM 2nd cycle &amp; on</th><th>TP-AUTO SEEK 1st cycle</th></tr><tr><td>LO</td><td>DX output</td><td>LO output</td><td>LO output</td><td>DX output</td><td>LO output</td></tr><tr><td>DX</td><td>DX output</td><td>DX output</td><td>LO output</td><td>DX output</td><td>LO output</td></tr></table>	Mode \	Regular reception	SEEK 1st cycle	BTM 1st cycle	SEEK, 8TM 2nd cycle & on	TP-AUTO SEEK 1st cycle	LO	DX output	LO output	LO output	DX output	LO output	DX	DX output	DX output	LO output	DX output	LO output	SW	<table><tr><th>Mode \</th><th>Regular reception</th><th>SEEK 1st cycle</th><th>BTM 1st cycle</th><th>SEEK, 8TM 2nd cycle &amp; on</th></tr><tr><td>LO</td><td>LO output</td><td>LO output</td><td>LO output</td><td>DX output</td></tr><tr><td>DX</td><td>DX output</td><td>DX output</td><td>LO output</td><td>DX output</td></tr></table>	Mode \	Regular reception	SEEK 1st cycle	BTM 1st cycle	SEEK, 8TM 2nd cycle & on	LO	LO output	LO output	LO output	DX output	DX	DX output	DX output	LO output	DX output
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63	SEEK-OUT	O	<p>SEEK OUT Output terminal.</p> <p>Used also as STOP REQUEST (IF count output request) and ABC cut, at the time of SEEK, BTM of AM (MW, LW, SW).</p> <p>At the time of FM, it is used for AF operation network search, EON-TA search, CXIX search, &amp; PTY search. Time constant switch over active “L” of S-meter.</p> <p>Used for Low output, when TUNER OFF.</p> <p>Basic timing</p>																																					
64	AM-ON	O	AM-ON Output terminal. (Both PLAYING, BIHIND) output “H” level, at the time of AM (MW, LW, SW)																																					
65	FM-ON	O	FM-ON Output terminal. (Both PLAYING, BIHIND) output “H” level, at the time of FM.																																					

Pin No.	Pin name	I/O	Description																								
66	MUTE	O	Mute output. Operation differs according to ⑤3 pin <table><tr><td></td><td>TUNER PLAYING</td><td>TUNER BIHIND</td><td>TUNER OFF</td><td>ACC OFF</td><td>POW OFF</td><td>BUP OFF</td><td>BUS OFF</td></tr><tr><td>MUTE – SEL=1</td><td>Regular operation</td><td>Always L</td><td>L</td><td>L</td><td>L</td><td>Input</td><td>Input</td></tr><tr><td>MUTE – SEL=0</td><td>Regular operation</td><td>Always H</td><td>H</td><td>H</td><td>H</td><td>Input</td><td>Input</td></tr></table>		TUNER PLAYING	TUNER BIHIND	TUNER OFF	ACC OFF	POW OFF	BUP OFF	BUS OFF	MUTE – SEL=1	Regular operation	Always L	L	L	L	Input	Input	MUTE – SEL=0	Regular operation	Always H	H	H	H	Input	Input
	TUNER PLAYING	TUNER BIHIND	TUNER OFF	ACC OFF	POW OFF	BUP OFF	BUS OFF																				
MUTE – SEL=1	Regular operation	Always L	L	L	L	Input	Input																				
MUTE – SEL=0	Regular operation	Always H	H	H	H	Input	Input																				
67	AF-SEEK	O	Output terminal for AF-SEEK. Used for AF operation network search, EON-TA search, C1X1X search, & PTY search of FM band. Used for time constant switch over of low pass filter. Active "H".																								
68	NC	–	Not used.																								
69	NC	–	Not used. (OPEN)																								
70	ST(MONO)	I/O	Terminal concurrently serving as ST-IND display input and forcible MONO output. Turns ON stereo display, with "LOW" level input. Display data is sent, when this input changes. This terminal outputs "L" level, at the time of forcible monaural output (refer to MONO/ST, SENS functions). Always valid at the time of FM band. MS4 at the time of AM (MW only) band (valid only when the mode select terminal is "1"). Changes with the command from master. When this command is received, display data with edge attached is sent back. FM, AM Independently possess this mode, and forcible monaural "L" level is output regardless of the mode, during TA interruption or alarm. <b>Note</b> : STEREO-OFF is always sent, at the time of forcible monaural output.																								
71	SD-IN	I	Terminal to decide the stop level of SEEK, AUTO-MEMORY, SCAN, etc.																								
72		–	Not used. (OPEN)																								
73		–	Not used. (OPEN)																								
74 – 80	NC	–	Not used. (OPEN)																								

**IC301 AK4318 (MAIN BOARD)**

Pin No.	Pin name	I/O	Description
1	NC	—	Not used. (OPEN)
2	VREF	O	Reference voltage output terminal. (AVDD) – 3.6V
3	NC	—	Not used (GND connection in this device).
4	AVDD	—	Analog power supply terminal. (+5V)
5	AVSS	—	Analog GND terminal.
6	TST	I	Test pin. Set open or at “L” (GND connection, in this device).
7	ZMUTE	I	Zero mute terminal Detects zero input and mutes the output, while “H”.
8	DIF0	I	Input format terminal (GND connection, in this device). Handles 4 modes.
9	DIF1	I	
10	DVSS	—	Digital GND terminal.
11	DVDD	—	Digital power supply terminal. (+5V)
12	LRCK	I	L/R Clock terminal Determines the channel of the input serial data.
13	BICK	I	Serial bit clock terminal. Clocks for latching the serial data.
14	SDATA	I	Serial data input terminal. 2’s Complement, MSB first
15	$\overline{\text{PD}}$	I	Reset terminal. Filter and modulator become reset, when this pin is set at “L”.
16	XTI	I	Clock input terminal. Either a crystal oscillator is connected between this pin and XTO, or external CMOS clocks are input to XTI. The frequency of clocks can be selected with CKS pin.
17	XTO	O	Quartz oscillator output terminal. When using a quartz oscillator, it connected between this pin and XTI. When using external clocks, this pin is kept open.
18	SMUTE	I	Soft mute terminal. (pull down pin) Starts soft mute while “H”, and cancels it while “L”.
19	DEM0	I	De-emphasis mode terminal. Corresponds to frequency.
20	DEM1	—	Not used (GND connection, in this device).
21	CKS	I	Clock selection terminal (GND connection, in this device). “L” : CLS=256fs, “H” : CLK=384fs
22	DZF	—	Not used. (OPEN)
23	AOUTR –	O	R ch Analog negative output terminal.
24	AOUTR+	O	R ch Analog positive output terminal.
25	AOUTL –	O	L ch Analog negative output terminal.
26	AOUTL+	O	L ch Analog positive output terminal.
27, 28	NC	—	Not used. (OPEN)

**IC310  $\mu$  PD78056YGC-W08-3B9 (MAIN BOARD)**

Pin No.	Pin name	I/O	Description
1	NOSE SW	I	Input terminal showing front panel or no front panel. 5V : Front panel, 0V : No front panel
2	HOME/TOP SW	I	Input terminal of HOME as well as TOP POSITION detecting SW of TURN TABLE. 5V : HOME, 2.5V : TOP, 0V : Others
3	PANEL	I	Input terminal showing OPEN/CLOSE of front panel. 5V : CLOSE, 0V : OPEN
4	AVss	—	GND Potential of A/D converter.
5	LDPOWER	O	Laser power adjusting terminal. L : Low reflection DISC (MO) 0.5mW : 2.9V, H : High reflection DISC (CD) 0.25mW : 2.7V
6	RMS	—	RMS Output of DRAM (D/A output). (OPEN, in this device).
7	AVREF1	—	Reference voltage input of D/A converter. (GND)
8	LCD-BUSY	I	Terminal to input BUSY from LCD driver. (MSM6665C-02)
9	LCD-DATAOUT	O	Terminal to output DATA to LCD driver. (MSM6665C-02)
10	LCD-CLKOUT	O	Terminal to output CLK to LCD driver. (MSM6665C-02)
11	SRDT	I	Terminal to input READ DATA for serial communication to MD servo IC.
12	SWDT	O	Terminal to output WRITE DATA for serial communication to MD servo IC.
13	SCK	O	Terminal to send CLOCK for serial communication to MD servo IC.
14	LINKOFF	O	<div style="border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px; display: inline-block;">                     Terminals for uni-link                 </div>
15	BUS-REQUEST	O	
16	BUS-DATAIN	I	
17	BUS-DATAOUT	O	
18	BUS-CLKIN	I	
19	RF-SW0	O	DISC Mode. L : MO, H : CD
20	RF-SW1	O	DISC Mode. L : GROOVE, H : PIT
21	ASY-SW	O	At the time of PIT playback : Fixed at HIGH At the time of MO playback : Always H, L at the time of track jump
22	AGC-SW	O	L : FOCUS end (AGC time constant long), H : FOCUS start (AGC time constant short)
23	MIRR-SW	O	At the time of PIT playback : Fixed at LOW At the time of MO playback : Always H, CLV at the time of track jump, L until the build up of ON of tracking & thread becomes OK.
24	DFCT-SW	O	L : All servo ON, H : FOCUS start
25	SLD-MUTE	O	Motor drive control output terminal. L : OFF, H : ON
26	LD ON	O	LASER ON/OFF output. L : ON, H : OFF
27	NC	—	Not used. (OPEN)
28	CD/MO	I	CD/MO Identifying terminal. H : CD, L : MO
29	SENS	I	Terminal to input SENSE from CXA1082, CXD2525.
30	LOCK	I	Terminal to input from CXD2525. L : CLV UNLOCK, H : CLV LOCK
31, 32	NC	—	Not used. (OPEN)
33	Vss	—	Micro computer GND. (0V)
34	DIRC	O	L : 1 Track Jump End, H : 1 Track Jump TZC detect
35	TEST MODE	I	L : Normal, H : Indash Singular test mode



Pin No.	Pin name	I/O	Description
36	SBMN	O	CXD2526 SBMN switch over. H : SUB, L : MAIN
37	WRMN	O	L : DT=RAM Write stop, H : DRAM Write start
38	OPEN LED	O	Turns ON, when ILL ON and PANEL OPEN. H : OFF, L : ON
39	COLOR	O	Terminal to switch over the LED color of DISPLAY. L : AMBER, H : GREEN, initial LOW
40	SYNC-SEL	O	SYNC Select terminal of SUBQ. L : SUBQ, H : ADIP
41	XINT	I	Interruption of CSD2526. Build-up edge detection.
42	LCD CE	O	CHIP ENABLE to LCD driver. (MSM66652C-02) H : ENABLE, L : DISABLE
43	LCD C/D	O	COMMAND/DATA SELECT to LCD driver. (MSM66652C-02)
44	MD-POWERON	O	Mechanism deck power terminal. L : OFF, H : ON
45	TABLE-UPDOWN	O	Terminal of the turn table up/down motor.
46	BEEP	O	Buzzer output.
47	TABLE-R	O	Driver IC control terminal of the turn table drive motor.
48	TABLE-L	O	
49	TABLE-BRAKE	O	Brake terminal of the turn table up/down motor.
50	MUTE	O	Audio MUTE output. L : CANCEL, H : MUTE
51	TPS/NOSE SEL	O	H : TPS, L : NOSE Terminal to output the selection of TPS/NOSE interruption.
52	MOD1	—	Not used. (OPEN)
53	MOD2	—	Not used. (OPEN)
54	DEEMP	O	DEEMPHASIS terminal. L : ON, H : OFF
55	XRST	O	2525, 2526 with build up, terminal to reset to digital filter.
56	XLAT	O	LATCH for serial communication to servo IC.
57	POWER ON	O	LED ON/OFF of general keys of NOSE. L : LED OFF, H : LED ON
58	ILL ON	O	LED ON/OFF of SOURCE key of NOSE L : LED OFF, H : LED ON
59	KEY-ACTIVE	O	ON/OFF of the key of A/D input. L : Key non-operational, H : Operational
60	RESET	I	RESET Terminal of micro computer.
61	SQSY/ATSY	I	SUB Q SYNC Interruption. Go down edge detection (when PIT) AIDP SYNC Interruption. Go down edge detection (when GROOVE)
62	KEYACK/SIRCS	I	KEYACK Terminal, when ILL ON of P126 = L. KEY-ACTIVE of P127 is built up from L to H, as soon as this terminal is built up from L to H by key operation. SIRCS Input terminal of remote control, when ILL ON of P126 = H.
63	TPS/NOSE ON	I	Optical sensor input for detecting turn table rotation. Also for WAKE UP from SLEEP MODE of micro computer dueto NOSE ON.
64	BU-CHECK	I	BACKUP Check terminal. L : No, H : Yes
65	MST	I	Magazine/no magazine detecting terminal. L : Nomagazine, H : Magazine
66	BUS-ON	I	Uni-link terminal. L : BUS ACTIVE, H : SLEEP
67	FOK	I	FOCUS OK. L : NG, H : OK
68	VDD	—	Micro computer power supply. (5V)
69	X2	—	Connection terminal for main system clock.
70	X1	—	Connection terminal for main system clock.

Pin No.	Pin name	I/O	Description																																																			
71	IC	—	Connection terminal for main system clock.																																																			
72	XT2	—	Not used. (OPEN)																																																			
73	TABLE- UPDOWN SW	I	Position detection SW input of turn table L : Others, H : Top or bottom limit position																																																			
74	AV <sub>DD</sub>	—	Analog power supply of A/D converter.																																																			
75	AVREF0	—	Reference voltage input of A/D converter.																																																			
76	KEY-IN0	I	Key scan by A/D input.																																																			
77	KEY-IN1	I	<table><tr><th>Voltage value</th><th>KEY-IN0( ⑦⑥ PIN)</th><th>KEY-IN1( ⑦⑦ PIN)</th></tr><tr><td>0V</td><td>TUNER</td><td>DSP</td></tr><tr><td>0.31V</td><td>CD</td><td>MUTE</td></tr><tr><td>0.64V</td><td>MD</td><td>1</td></tr><tr><td>0.94V</td><td>VISUAL</td><td>2</td></tr><tr><td>1.25V</td><td>OFF</td><td>3</td></tr><tr><td>1.52V</td><td>SEEK+/AMS+</td><td>4</td></tr><tr><td>1.84V</td><td>SEEK — /AMS —</td><td>5/INTRO</td></tr><tr><td>2.11V</td><td>LIST</td><td>6/REPEAT</td></tr><tr><td>2.46V</td><td>LEVEL —</td><td>7/SHUFFLE</td></tr><tr><td>2.77V</td><td>SEL</td><td>8/D. SCAN</td></tr><tr><td>3.11V</td><td>LEVEL+</td><td>9/BANK</td></tr><tr><td>3.44V</td><td>PRESET — /DISC — /MANU —</td><td>10</td></tr><tr><td>3.75V</td><td>PRESET+/DISC+/MANU+</td><td>***</td></tr><tr><td>4.08V</td><td>SCRL/REC DATE</td><td>***</td></tr><tr><td>4.39V</td><td>DSPL</td><td>***</td></tr><tr><td>4.69V</td><td>***</td><td>***</td></tr></table>	Voltage value	KEY-IN0( ⑦⑥ PIN)	KEY-IN1( ⑦⑦ PIN)	0V	TUNER	DSP	0.31V	CD	MUTE	0.64V	MD	1	0.94V	VISUAL	2	1.25V	OFF	3	1.52V	SEEK+/AMS+	4	1.84V	SEEK — /AMS —	5/INTRO	2.11V	LIST	6/REPEAT	2.46V	LEVEL —	7/SHUFFLE	2.77V	SEL	8/D. SCAN	3.11V	LEVEL+	9/BANK	3.44V	PRESET — /DISC — /MANU —	10	3.75V	PRESET+/DISC+/MANU+	***	4.08V	SCRL/REC DATE	***	4.39V	DSPL	***	4.69V	***	***
			Voltage value	KEY-IN0( ⑦⑥ PIN)	KEY-IN1( ⑦⑦ PIN)																																																	
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			4.39V	DSPL	***																																																	
4.69V	***	***																																																				
78	INITIALIZE	I	0V : Digital, 5V : Analog																																																			
79	NC	—	Not used. (GND connection, in this device)																																																			
80	TEMP	I	Mechanism deck temperature detection. HIGH TEMP ERROR processing is executed immediately after dropping below a certain voltage value. HIGH TEMP, when less than 0.5889V. HIGH TEMP cancelled, when more than 0.6349V.																																																			

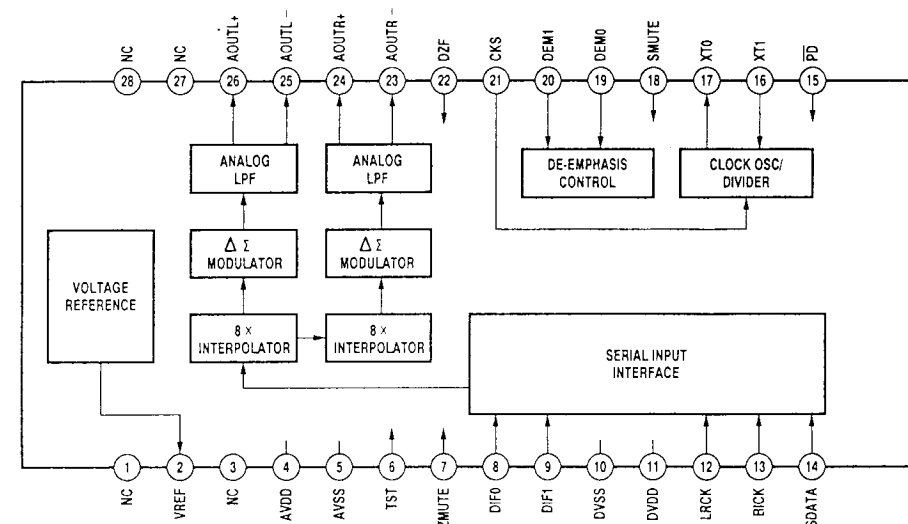
**IC316 CXD101109Q (MAIN BOARD)**

Pin No.	Pin name	I/O	Description
1	MTOT	O	Terminal to output mute to CXD2351R.
2	XABS	I	Serial transfer synchronizing pulse between CXD2526Q and CXD2531R.
3	ACDI	I	Terminal to input data from CXD2526Q.
4	V <sub>SS</sub>	—	GND.
5	ACLK	I	Serial transfer clocks (128Fs) from CXD2526Q.
6	C2OT	O	C2PO Output to CXD2531R.
7	C2PO	I	Error status of the input data from CXD2526Q.
8	XARQ	I	Data transfer request from CXD2531R to CXD2526Q.
9	SHCK	—	Not used. (OPEN)
10	TI0	—	Chip reservation terminal. (GND connection, in this device)
11	TO0	—	Chip reservation terminal. (OPEN, in this device)
12	TO1	—	Chip reservation terminal. (OPEN, in this device)
13	V <sub>DD</sub>	—	Power terminal. (+5V)
14	SWDT	I	Data input terminal of serial micro computer interface.
15	SCLK	I	Transfer clock input terminal of serial micro computer interface.
16	XLAT	I	Latch pulse input terminal of serial micro computer interface.
17	THRU	—	Function OFF input of CXD101109Q. (ON when “L”, OFF when “H”) (GND connection, in this device)
18	C2MD	—	Error concealment mode setting input 1. (GND connection, in this device)
19	C2M2	—	Error concealment mode setting input 2. (GND connection, in this device)
20	V <sub>SS</sub>	—	GND.
21	REC	—	Record/playback command (record when “H”). (GND connection, in this device)
22	SCKO	—	Not used. (OPEN)
23	SLTO	—	Not used. (OPEN)
24	SDTO	—	Not used. (OPEN)
25	TC2	—	Traverse count signal input 2. (for shock detection circuit). (GND connection, in this device)
26	TC1	—	Traverse count signal input 1. (for shock detection circuit). (GND connection, in this device)
27	OFTR	—	Off track signal input (for shock detection circuit). (GND connection, in this device)
28	DFCT	—	Defect detection signal input (for shock detection circuit). (GND connection, in this device)
29	V <sub>DD</sub>	—	Power terminal. (+5V)
30	NC	—	Not used. (OPEN)
31	XRST	I	Reset input (reset when “L”) terminal.
32	SCTX	—	Record state setting input (for shock detection circuit). (GND connection, in this device)

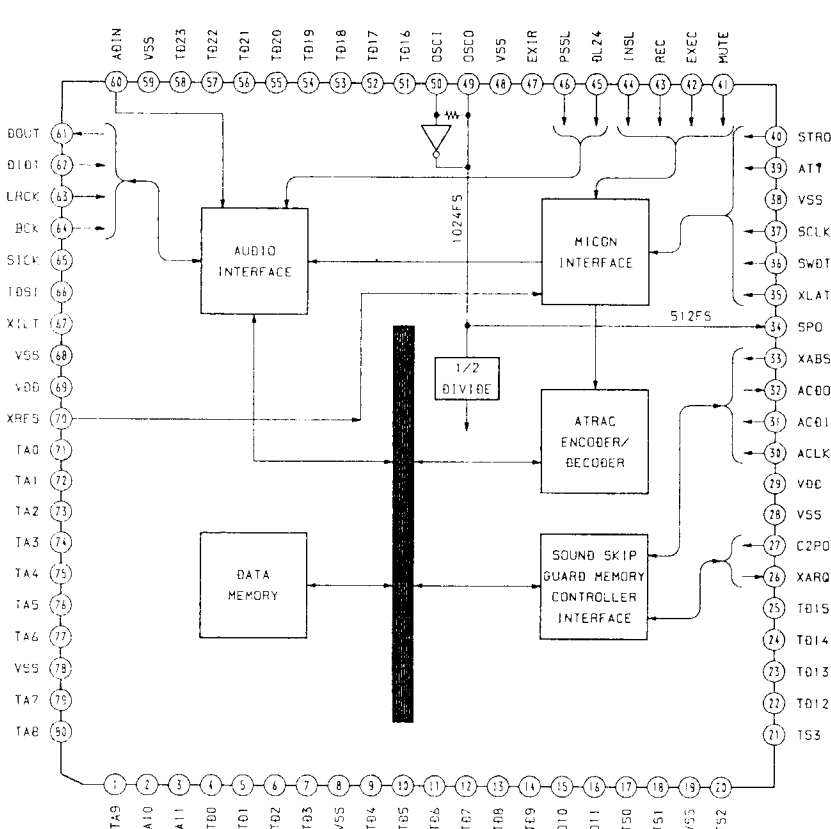
• IC BLOCK DIAGRAMS

— MAIN SECTION —

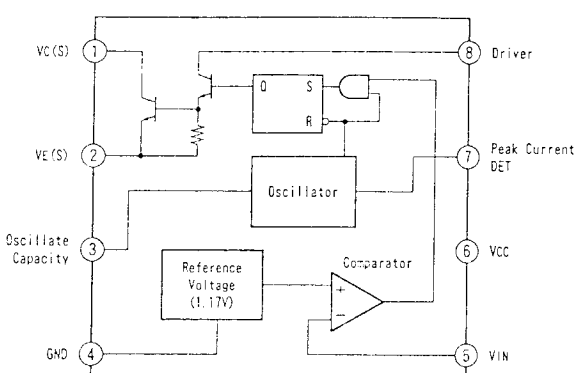
IC301 AK4318



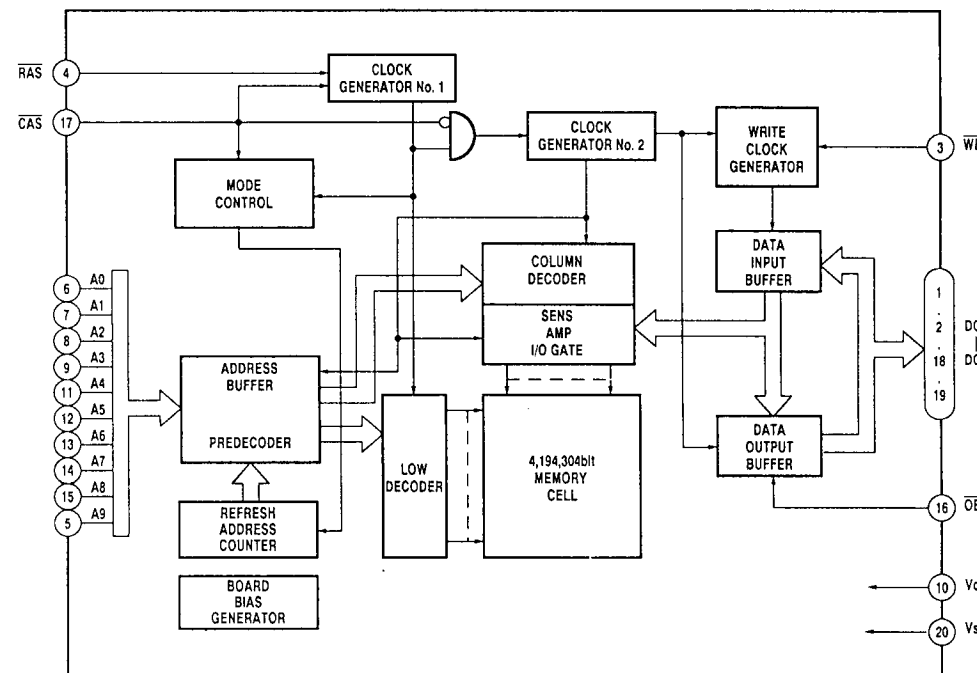
IC302 CXD2531R



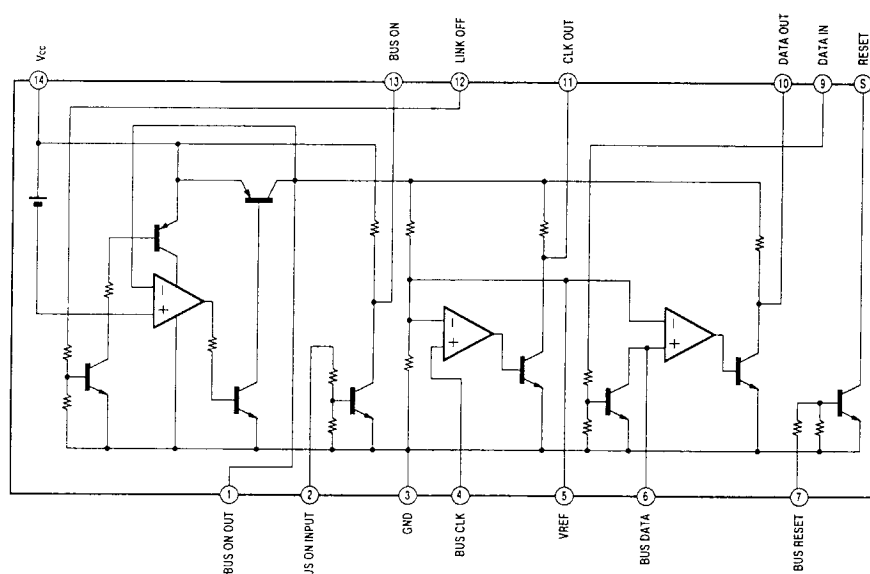
IC312 M5291FP



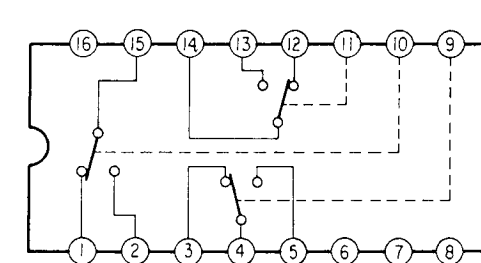
IC304 CXK414400TM-12



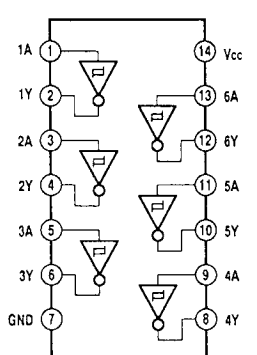
IC308 MM1176XFF



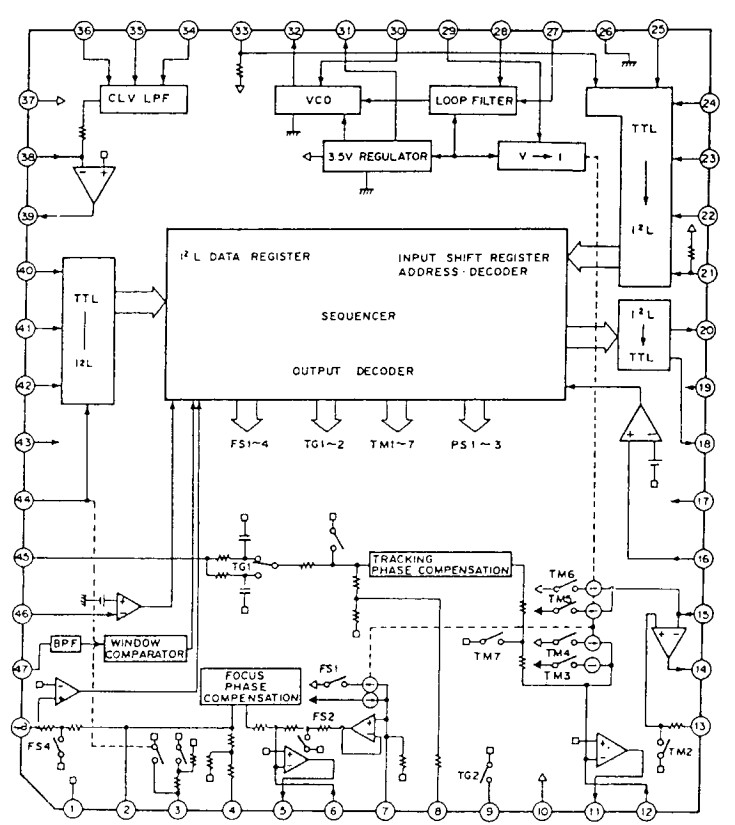
IC313 HD14053BFP



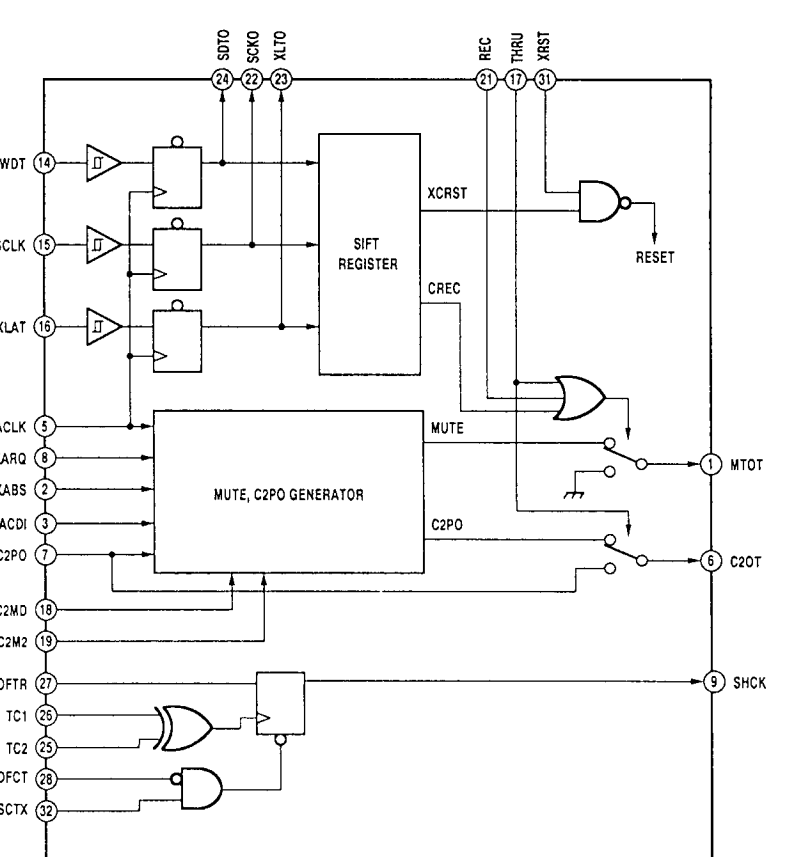
IC315 TC74HC14AP



IC311 CXA1082BQ



IC316 CDX101109Q

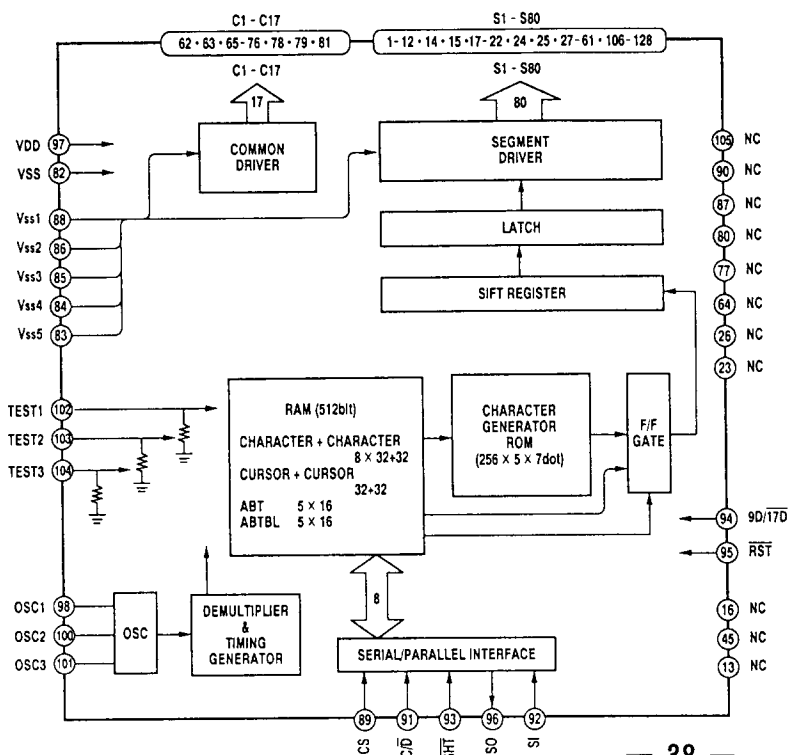




The block diagram illustrates the internal architecture of the Philips SAA7346 video decoder. Key functional blocks include:

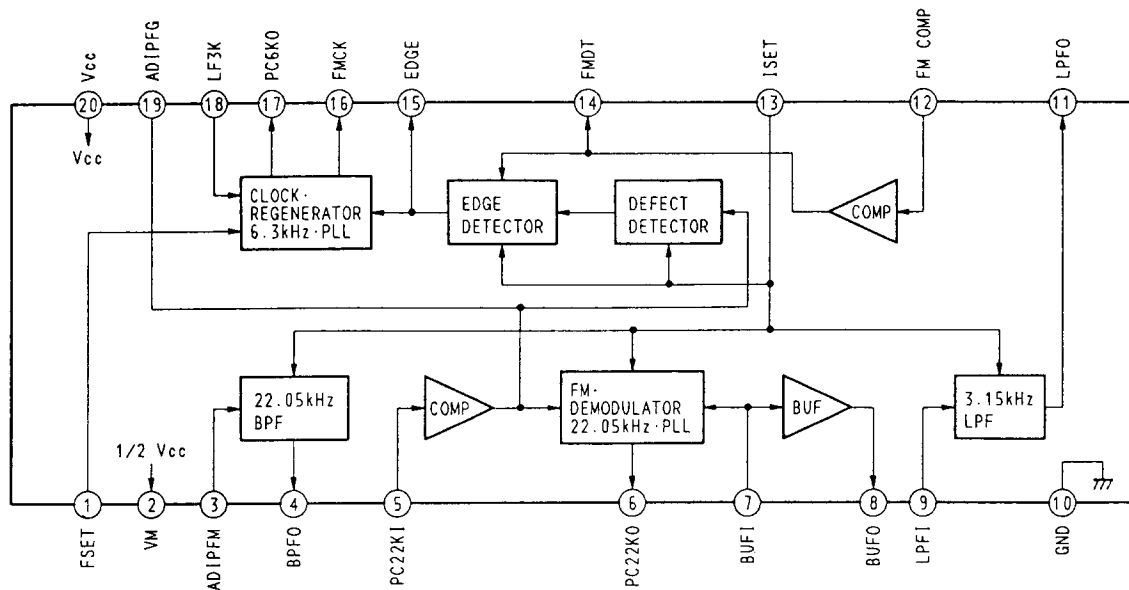
- Input/Output and Control:** Includes pins for HOP, HOS, FM1, ASY, DOCK, CO0, CO1, ST1, PBO, VSS, FMO, FMI, NIN, ENS, YPL, ILO, ILI, PCO, VSS, and LTY. It also features a 34MHz PLL and a CPU COMMAND I/F block.
- Demodulation and Modulation:** Contains an EFM DEMODULATOR, a DECODE CLOCK GENERATOR, a DETECTOR PLL, an EFM MODULATOR, and a SENS CONTROL block.
- Processing and Timing:** Includes a SUB Q READER/GENERATOR, a SUB Q PROCESSOR, a TIMING GENERATOR, and a SYNC DET./INS. block.
- Storage and Error Correction:** Features a RAM block, an ECC ENCODER/DECODER, and a DIGITAL IN/OUT block with a DIGITAL IN PLL.
- Internal Registers and Buses:** The diagram shows two REGISTER blocks, a PEAK DETECT block, and a central BUS connecting various components.
- Output and Test Points:** Pins for MT3, RAOF, BIPB, TEST2, MYCO, MYC1, XTAD, XTA1, MCLK, VSS, EVCO, EVC1, RFCK, EP00, GFS, XPLCK, XUGFS, GTOP, FS4, BCK, XBCK, LRCK, and MDCK are shown on the right side.

**IC801 MSM6665C-02GS-K**

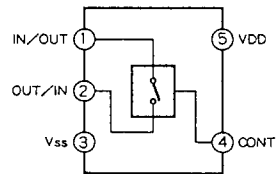


# — ROTARY SECTION —

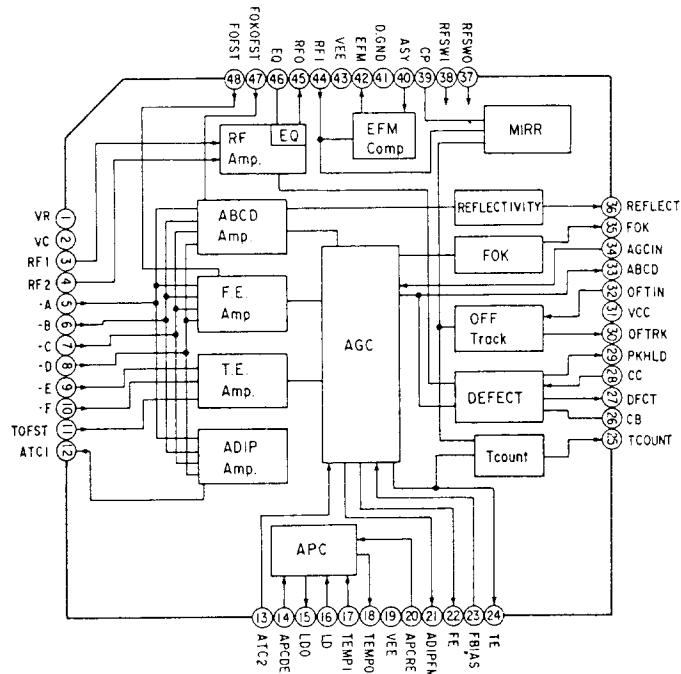
**IC501 CXA1380N**



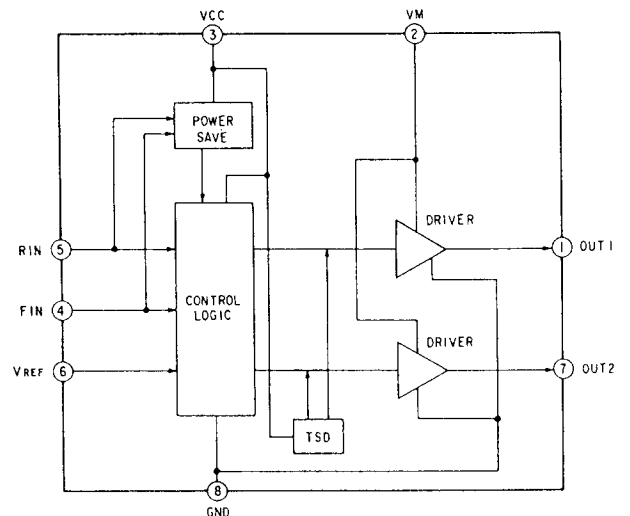
**IC502, 503, 505 TC4S66F**



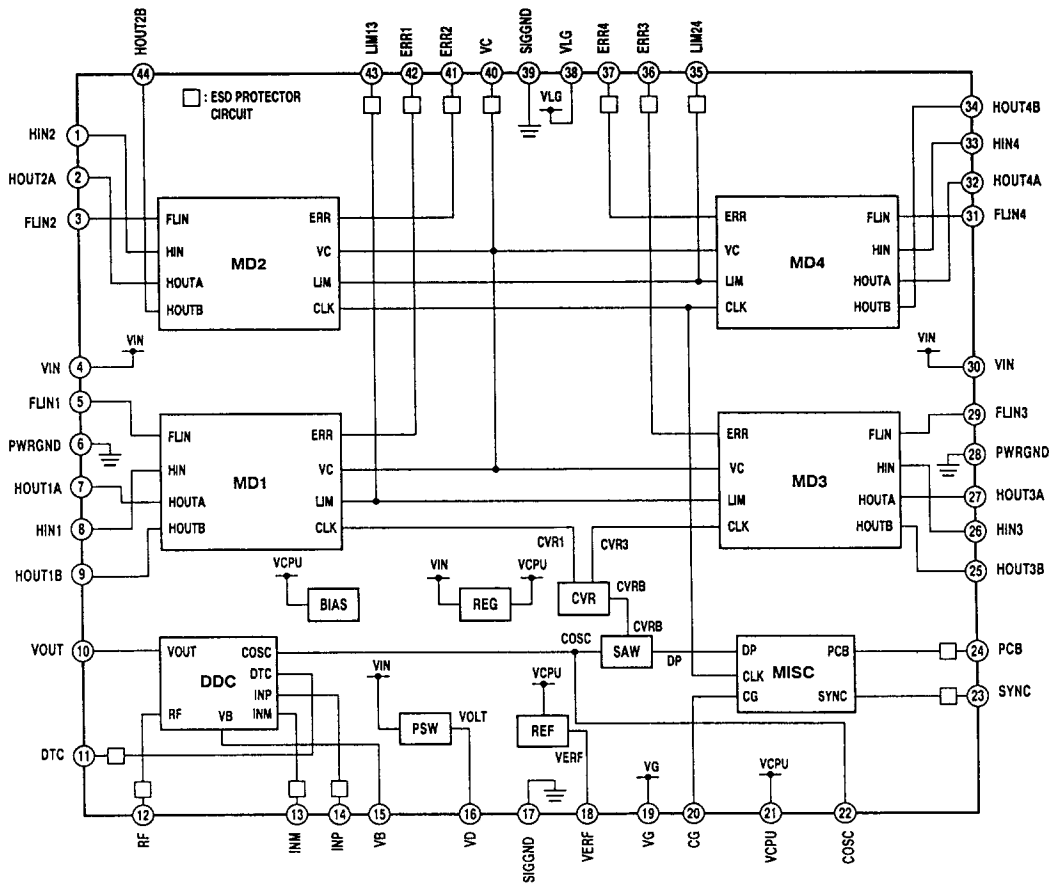
**IC504 CXA1381R**



**IC508 BA6287F**

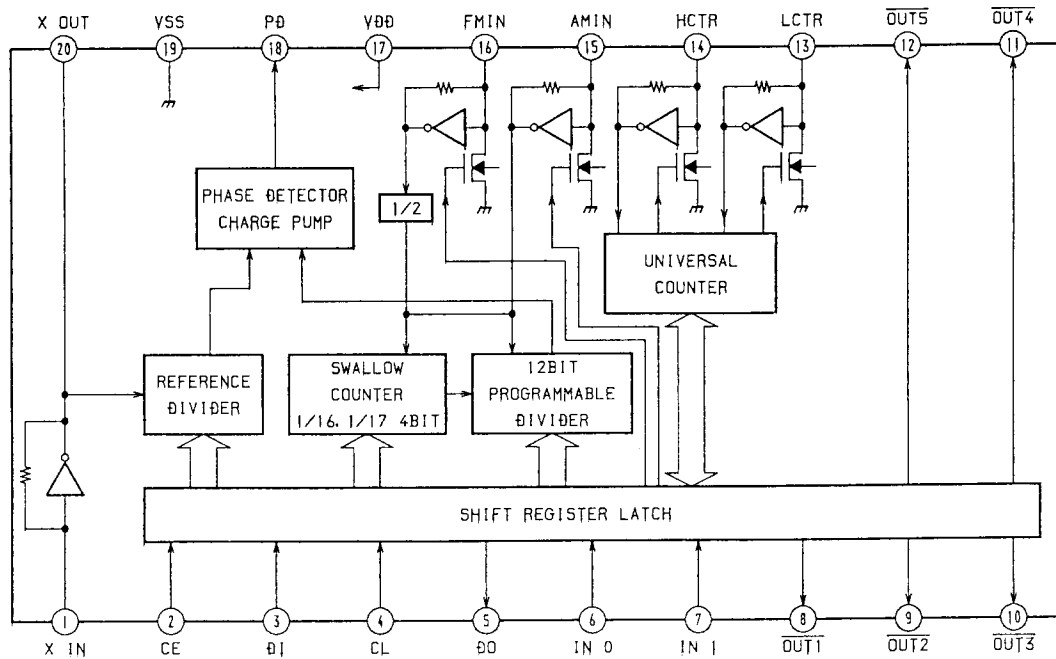


# IC506 MPC1718FU



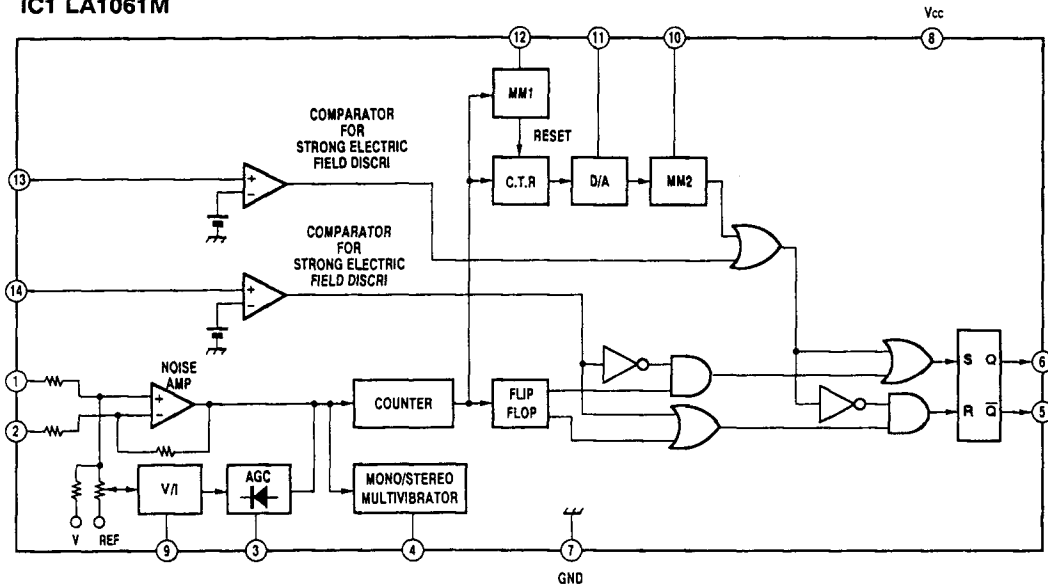
## — HIDEAWAY SECTION —

### IC2 LC7216M

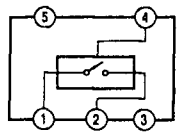




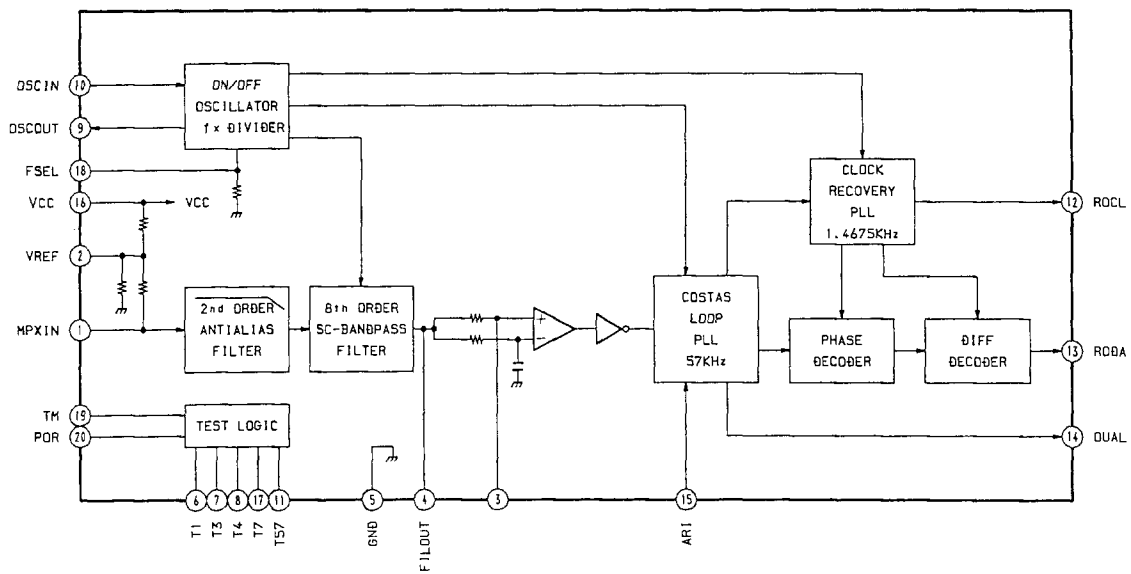
IC1 LA1061M



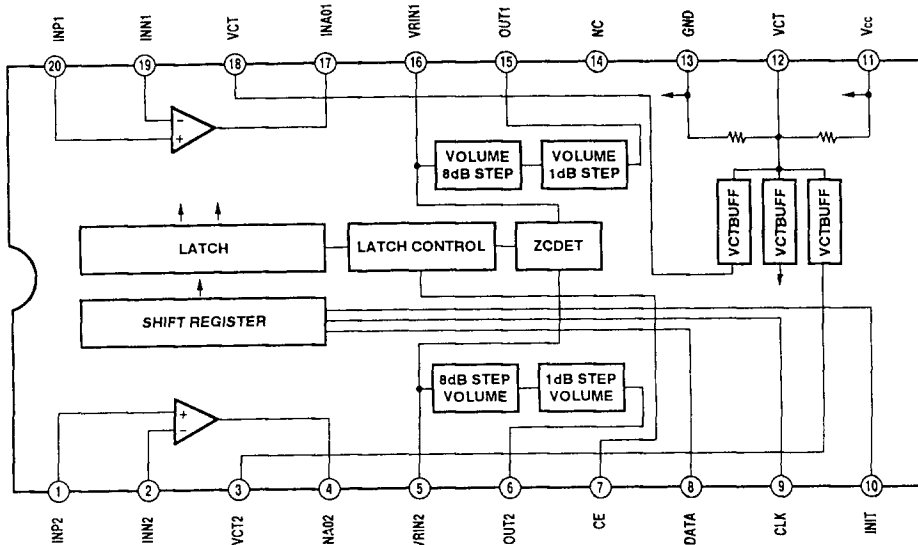
IC5, 6 TC7S66F



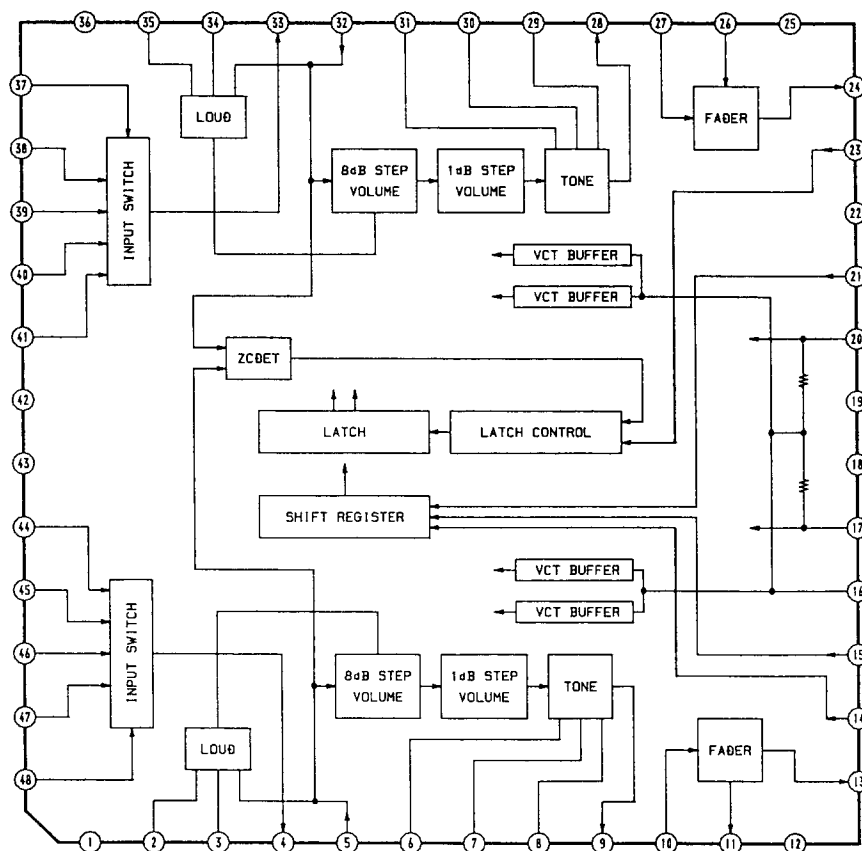
IC4 TDA7330BD-013TR



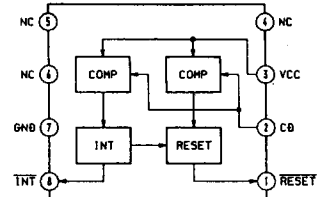
IC302 CXA1846M



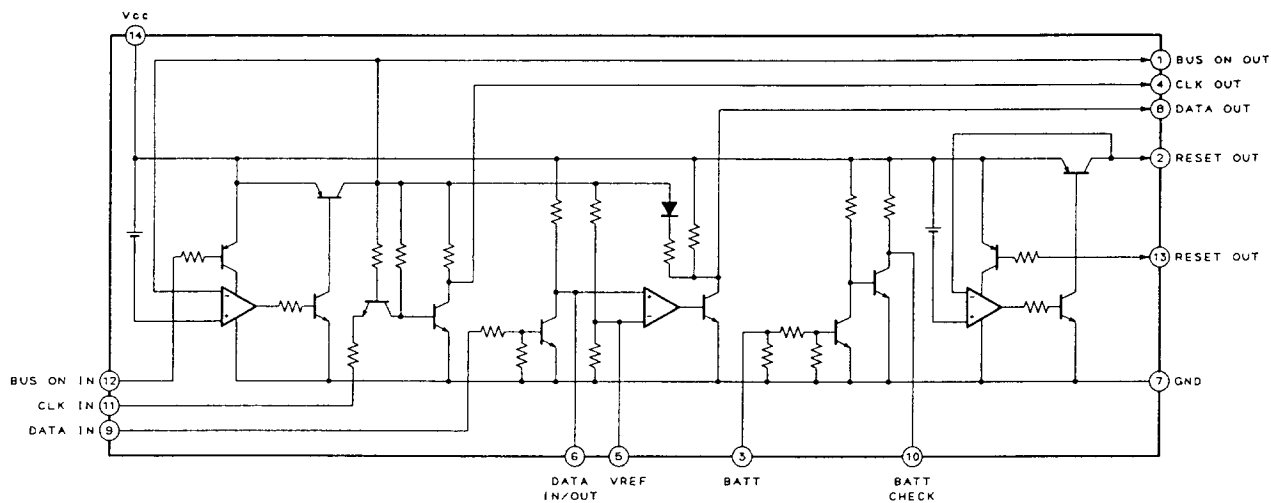
# IC301 CXA1646Q



# IC702 M62007FP



# IC504 MM1175XF



● ELECTRICAL PARTS LIST (Service Manual See page 66 – 81)

## Former Parts

## New Parts

Ref. No.	Part No.	Description	Part No.	Description	Remark
C3 (Page 68)	1-164-232-11	CERAMIC CHIP 0.01uF 50V	_____	_____	Deleted
C110 (Page 69)	1-136-161-00	FILM 0.047uF 5% 50V	1-130-479-00	MYLAR 0.0047uF 5% 50V	Changed
C210 (Page 69)	1-136-161-00	FILM 0.047uF 5% 50V	1-130-479-00	MYLAR 0.0047uF 5% 50V	Changed
C758 (Page 70)	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 50V	Changed
C759 (Page 70)	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 50V	Changed
C760 (Page 70)	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 50V	Changed
C761 (Page 70)	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 50V	Changed
L1 (Page 71)	_____	_____	1-410-324-11	INDUCTOR 4.7uH	Added
R50 (Page 72)	1-216-295-00	METAL CHIP 0 5% 1/10W	1-216-037-00	METAL GLAZE 330 5% 1/10W	Changed
C312 (Page 74)	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	1-164-346-11	CERAMIC CHIP 1uF 16V	Changed
RV601 (Page 74)	1-241-767-21	RES, ADJ, CARBON 100K	1-241-767-21	RES, ADJ, CARBON 100K (S-METER) (MDX-400)	Changed
			1-238-605-31	RES, ADJ, CARBON 470K (S-METER) (MDX-400RDS)	
D330 (Page 76)	8-719-422-64 8-719-901-33	DIODE MA8062-M DIODE 1SS133T	8-719-422-64	DIODE MA8062-M	Changed
D331 (Page 76)	8-719-422-64 8-719-901-33	DIODE MA8062-M DIODE 1SS133T	8-719-422-64	DIODE MA8062-M	Changed
FB319 (Page 76)	1-414-235-11	INDUCTOR, FERRITE BEAD	_____	_____	Deleted
R339 (Page 77)	1-216-073-00	METAL CHIP 10K 5% 1/10W (MDX-400)	1-216-097-00	METAL GLAZE 100K 5% 1/10W	Changed
R339 (Page 77)	1-216-097-00	METAL CHIP 100K 5% 1/10W (MDX-400RDS)			Changed
R463 (Page 78)	_____	_____	1-216-295-91	METAL GLAZE 0 5% 1/10W	Added
R501 (Page 80)	1-216-845-11	METAL CHIP 100K 5% 1/16W	1-216-841-11	METAL GLAZE 47K 5% 1/16W	Changed
R503 (Page 80)	1-220-372-11	METAL GLAZE 200K 5% 1/16W	1-216-848-11	METAL GLAZE 180K 5% 1/16W	Changed
R504 (Page 80)	1-220-372-11	METAL GLAZE 200K 5% 1/16W	1-216-848-11	METAL GLAZE 180K 5% 1/16W	Changed